MODULE I - STANDARD PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

I.A.1. The Permittee is allowed to store hazardous waste in containers at the ATK Launch Systems Incorporated, Bacchus Facility - Plant 1, in accordance with the conditions of this Permit. Any storage, treatment or disposal of hazardous waste not authorized in this Permit, is prohibited.

I.A.2. Compliance with this Permit, during its term, constitutes compliance for purposes of enforcement with applicable sections of Utah Administrative Code (UAC) R315 only for those management practices specifically authorized by this Permit.

I.A.3. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations.

I.A.4. This Permit has been developed in accordance with the applicable requirements of UAC R315-1 through 101. All conditions within this Permit will ~~supercede~~supersede conflicting statements, requirements, or procedures found within UAC R315-1 through 101 or Attachments to this Permit.

I.B. ENFORCEABILITY

I.B.1. Violation of this Permit may be considered a violation subject to Utah Code Annotated (UCA) 19-6-113.

I.C. OTHER AUTHORITY

I.C.1. The ~~Executive Secretary~~Director expressly reserves all rights of entry provided by law and the authority to order or perform emergency or other response activities as authorized by law.

I.D. PERMIT ACTIONS

I.D.1. This Permit may be modified, revoked and reissued, or terminated for cause, as specified in UAC R315-4-1.5 and UAC R315-3-4.4.

I.D.2. The filing of a request for a Permit modification, revocation and reissuance or termination, or the notification of planned changes, requiring prior approval, or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any Permit condition.

I.D.3. All Permit conditions supersede conflicting statements, ~~requirements~~requirements, or procedures found within the Attachments.

I.D.4. If a conflict exists between conditions within this Permit, the most stringent condition, as determined by the ~~Executive Secretary~~Director shall be met.

I.D.5. The ~~Executive Secretary~~Director may modify this Permit in accordance with UAC R315-3-4.2.

I.D.6. This Permit may be modified at the request of the Permittee in accordance with the procedures of UAC R315-3-4.3.

I.D.7. In accordance with the Utah Code Annotated (UCA), Utah Solid and Hazardous Waste Act, 19-6-108(13), this Permit shall be reviewed no later than five years from the date of issuance or renewal and modified, if necessary.

I.E. SEVERABILITY

I.E.1. The provisions of this Permit are severable and if any provision, or the application of any provision to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any state or federal statutory or regulatory provision which forms the basis for any condition of this Permit does not affect the validity of any other State or federal statutory or regulatory basis for said condition.

I.F. DUTIES TO COMPLY

I.F.1. The Permittee shall comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an Emergency Permit issued in accordance with UAC R315-3-6.2. Any Permit noncompliance, other than noncompliance authorized by an Emergency Permit, constitutes a violation of the Utah Solid and Hazardous Waste Act, and is grounds for enforcement action, Permit modification, revocation and reissuance termination, or denial of a Permit renewal application, or a combination of an enforcement action and any of the other listed remedies.

I.F.2. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under Sections 3007, 3008, 3013, or 7003 of RCRA (42 U.S.C. Sections 6927, 6928, 6934 and 6973), Section 106(a), 104, or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9606(a), 9604, and 9607, commonly known as CERCLA) as amended by the Superfund Amendments and Re-authorization Act of 1986 (SARA), or any other state or federal law providing for protection of human health or the environment from any imminent and substantial endangerment to human health or the environment.

I.G. DUTY TO REAPPLY

I.G.1. If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee shall apply for a new Permit in accordance with UAC R315-3-3.1(b) a minimum of 180 calendar days prior to the expiration date.

I.H. PERMIT EXPIRATION

I.H.1. This Permit shall be effective for ten years from the date of issuance.

I.I. CONTINUATION OF EXPIRING PERMIT

I.I.1. This Permit, and all conditions herein, shall continue in force until the effective date of a new Permit, if the Permittee has submitted a timely and complete application under the applicable requirements of UAC R315-3 and R315-4, and through no fault of the Permittee, the ~~Executive Secretary~~Director has neither issued nor denied a new Permit under UAC R315-3-5.2 on or before the expiration date.

I.J. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

I.J.1. It shall not be a defense for the Permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

I.K. DUTY TO MITIGATE

I.K.1. The Permittee shall take all reasonable steps to minimize releases of solid and hazardous wastes, hazardous waste constituents, and perchlorate salts to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I.L. PROPER OPERATION AND MAINTENANCE

I.L.1. The Permittee shall, at all times, properly operate and maintain all facilities, treatment systems and ancillary controls (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit~~.~~. This provision requires the operation of back-up or auxiliary equipment or similar systems when necessary to achieve compliance with this Permit.

I.M. DUTY TO PROVIDE INFORMATION

I.M.1. The Permittee shall furnish to the ~~Executive Secretary~~Director, within a reasonable time, any relevant information ~~which~~ that the ~~Executive Secretary~~Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit~~.~~. The Permittee shall also furnish to the ~~Executive Secretary~~Director upon request, copies of records required to be kept by this Permit.

I.N. INSPECTION AND ENTRY

I.N.1. Pursuant to the Utah Solid and Hazardous Waste Act, 19-6-109, the Permittee shall allow the Board, the ~~Executive Secretary~~Director, or its authorized officer, employee, or representative, upon the presentation of credentials and other documents, as may be required by law, to:

I.N.1.a. Enter, at any reasonable time, the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept as required by the conditions of this Permit;

I.N.1.b. Have access to and copy of, at reasonable times, any records that are kept as required by the conditions of this Permit;

I.N.1.c. Inspect, at reasonable times, any portion of the facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;

I.N.1.d. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance, or as otherwise authorized by the Utah Solid and Hazardous Waste Act, any substances or parameters at any location; and

I.N.1.e. Make a record of the inspection by photographic, electronic, videotape, or any other reasonable medium.

I.N.1.f. No audio recording devices shall be used without notice to all individuals in recording range prior to activation of the recording device. Photographic and video recording shall comply with the safety and security requirements of the Permittee.

I.O. MONITORING AND RECORDS

I.O.1. The Permittee shall retain records of all sampling, monitoring and waste analysis information, including calibration and maintenance records and, where applicable, all original strip chart recordings (or equivalent recordings) for continuous monitoring instruments, copies of all reports and records required by this Permit, the waste minimization certification required by UAC R315-8-5.3 and records of all data used to comply with the conditions of this Permit, including any and all data to support the human health and ecological risk assessments for cleanup and closure activities. All of the above referenced material shall be retained for a period of at least three years from the date of the sample, measurement, report, certification, or recording unless a longer retention period for certain information is required by other conditions of this Permit~~.~~. The three-year period may be extended by the ~~Executive Secretary~~Director at any time by written notification to the Permittee~~.~~. The retention times are automatically extended during the course of any unresolved enforcement action regarding the facility to three years beyond the conclusion of the enforcement action. Recordkeeping may be accomplished using original documents, xerographic copies, document replicas, electronic facsimiles, electronic disk, CD-ROM computer drive files, microfilm, microfiche, photograph, magnetic tape, or any other reasonable medium or similar recordkeeping technique. Any recordkeeping system shall be capable of reproducing complete, accurate, and legible records.

I.O.2. Pursuant to UAC R315-3-3.1(j)(3), records of monitoring information shall specify at a minimum:

I.O.2.a. The date(s), exact place, and times of sampling or measurements;

I.O.2.b. The name(s), title(s), and affiliation of individual(s) who performed the sampling or measurements;

I.O.2.c. The date(s) analyses were performed;

I.O.2.d. The individual(s) who performed the analyses;

I.O.2.e. The analytical techniques or methods used; and,

I.O.2.f. The results of such analyses.

I.O.3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed shall be the appropriate method from UAC R315-50-6 or an equivalent method approved by the ~~Executive Secretary~~Director. Laboratory methods shall be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846 (prevailing edition, hereafter referred to as SW-846), or Standard Methods of Examination of Water and Wastewater (prevailing edition)~~.~~. Other alternate methods approved in this Permit, or an equivalent method, in accordance with Condition I.O.4. of this Permit will be allowed if approved by the ~~Executive Secretary~~Director.

I.O.4. When requesting substitute or additional analytical methods, the Permittee shall submit to the ~~Executive Secretary~~Director a request for substitution of an analytical method(s) ~~which~~ that is equivalent to the method(s) currently approved or listed in UAC R315-2-15~~.~~. The request shall provide information demonstrating that the proposed method(s) requested is equivalent or superior in terms of sensitivity, accuracy, and precision (e.g., reproducibility).

I.O.5. This permit contains and refers to documents and forms on which information and data is recorded. The Permittee may reformat documents and forms as necessary to carry out administrative duties. Changes pertaining to a document or form shall only be changed in accordance with the provisions of Condition I.D.6.

I.P. REPORTING PLANNED CHANGES

I.P.1. The Permittee shall give written notice to the ~~Executive Secretary~~Director prior to any planned physical alterations or additions to any Hazardous Waste Management Unit (HWMU) or system being permitted or previously permitted in accordance with UAC R315-3-3.1(f) and UAC R315-3-3.1(l). Any changes or physical alterations or additions to any HWMU shall be in accordance with Condition I.D.6. Planned physical alterations or additions shall include all changes in any hazardous or solid waste activities, and to any non-waste underground storage tanks regulated under UAC R311-202. Neither construction nor operation of a new or modified HWMU shall begin unless the provisions of UAC R315-4-1.5 are met.

I.Q. REPORTING ANTICIPATED NONCOMPLIANCE

I.Q.1. The Permittee shall give advance notice to the ~~Executive Secretary~~Director of any planned changes in the permitted facility or activity ~~which~~ that may result in noncompliance with requirements of this Permit. Advance notice shall not constitute a defense for any noncompliance.

I.R. CERTIFICATION OF CONSTRUCTION OR MODIFICATION

I.R.1. The Permittee shall not commence storage, treatment, or disposal of hazardous waste in a new HWMU or in a modified portion of an existing permitted HWMU (except as provided in UAC R315-3-4.3), until:

I.R.1.a. The Permittee has submitted to the ~~Executive Secretary~~Director:

I.R.1.a.i. A letter signed by the Permittee, and an independent Utah registered professional engineer qualified by experience and education in the appropriate engineering field, certifying that the unit(s) has been constructed or modified in compliance with this Permit; and

I.R.1.a.ii. As-built engineering drawings and specifications as appropriate; and

I.R.1.a.iii. The ~~Executive Secretary~~Director or designated representative has reviewed and inspected the modified or newly constructed unit(s) and has notified the Permittee in writing that the unit(s) was found to be in compliance with the conditions of this Permit; or

I.R.1.a.iv. If within 15 calendar days of the date of receipt of the letter required by Condition I.R.1.a.i., the Permittee has not received notice from the ~~Executive Secretary~~Director~~,~~ of the intent to inspect, a prior inspection is waived and the Permittee may commence treatment, storage, or disposal of hazardous waste in the permitted unit certified in accordance with Condition I.R.1.

I.S. TRANSFER OF PERMIT

I.S.1. This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to UAC R315-3-4.1 and UAC R315-3-4.2(b)(2). Prior to transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator, in writing, of the requirements of UAC R315-3, UAC R315-8, and this Permit. Failure by the Permittee to notify the new owner or operator of the requirements of UAC R315-8 and this Permit in no way relieves the new owner or operator of his obligation to comply with all applicable requirements of the Rules and this Permit.

I.T. TWENTY-FOUR HOUR REPORTING

I.T.1. In accordance with UAC R315-3-3.1(l)(6)(i), the Permittee shall orally report to the ~~Executive Secretary~~Director any noncompliance with this Permit which may endanger human health or the environment. Any such information shall be reported as soon as possible, but not later than 24 hours from the time the Permittee becomes aware of the noncompliance. Reporting shall not constitute a defense for any noncompliance.

I.T.2. In accordance with UAC R315-9-1(b), the Permittee shall orally report to the ~~Executive Secretary~~Director any spill of any hazardous waste or material which, when spilled becomes a hazardous waste if the spilled quantity exceeds 100 kilograms or a lesser amount if there is a potential for endangerment to human health or the environment, or exceeds 1 kilogram if the material and is an acute hazardous waste as defined by UAC R315-9-1(b)(2). Any such information shall be reported as soon as possible, but not later than 24 hours from the spill occurrence.

I.T.3. The Permittee shall orally report to the ~~Executive Secretary~~Director any spill that contains perchlorate, if the perchlorate concentration is greater than 15 ug/l and the spilled quantity exceeds 100 kilograms. Any such information shall be reported as soon as possible, but not later than 24 hours from the spill occurrence.

I.T.4. The oral report shall include, but not be limited to, the following:

I.T.4.a. Information concerning the release of any hazardous waste or material which may endanger public drinking water supplies; and,

I.T.4.b. Any information of a release or discharge of hazardous waste or material, fire, or explosion at the facility, which could threaten human health or the environment.

I.T.4.c. The description of the occurrence and its cause shall include:

I.T.4.c.i. Name, title, and telephone number of individual reporting;

I.T.4.c.ii. Name, address, and telephone number of the owner or operator;

I.T.4.c.iii. Name, address, and telephone number of the facility;

I.T.4.c.iv. Date, time, and type of incident;

I.T.4.c.v. Location and cause of incident;

I.T.4.c.vi. Name and quantity of materials involved;

I.T.4.c.vii. The extent of injuries, if any;

I.T.4.c.viii. An assessment of actual or potential hazard to the environment and human health, when this is applicable;

I.T.4.c.ix. Description of any emergency action taken to minimize a threat to human health and the environment;

I.T.4.c.x. Estimated quantity and disposition of recovered material that resulted from the incident~~,~~ ~~and~~; and,~~;~~

I.T.4.c.xi. Any other information necessary to fully evaluate the situation and to develop an appropriate and applicable course of action.

I.T.5. Within 15 days of the time the Permittee is required to provide the oral report, as specified in Conditions I.T.1. through I.T.4., the Permittee shall provide to the ~~Executive Secretary~~Director a written report.

I.T.6. The written report shall include, but not be limited to, the following:

I.T.6.a. The name, title, address, and telephone number of the individual reporting;

I.T.6.b. A description including the date, time, location, and nature of the reported incident;

I.T.6.c. The extent of injuries, if any;

I.T.6.d. The name and quantity of material(s) involved in the spill;

I.T.6.e. An estimated quantity and disposition of recovered material;

I.T.6.f. An assessment of actual or potential hazards to human health and the environment, where this is applicable. The report shall also include whether or not the results of the incident

remain a threat to human health and the environment (whether the noncompliance has been corrected and the release has been adequately cleaned up); and

I.T.6.g. If the release or noncompliance has not been adequately corrected or cleaned, the anticipated time that the noncompliance or remediation is expected to continue; the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance; and/or the steps taken or planned to adequately remediate the release.

I.U. MONITORING RECORDS

I.U.1. Monitoring information shall be recorded and maintained as specified in Condition I.O.

I.V. COMPLIANCE SCHEDULES

I.V.1. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 days following each scheduled date.

I.W. MANIFEST DISCREPANCY REPORT

I.W.1. Manifest discrepancies shall be defined as differences between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste the permittee actually receives. Significant discrepancies in quantity are: (1) for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload, and (2) for bulk waste, variations greater than 10 percent in weight. Significant discrepancies in type are obvious differences ~~which~~ that can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper. If a significant discrepancy is discovered on a manifest, the Permittee shall attempt to reconcile the discrepancy. If not resolved within 15 days, the Permittee shall submit a written report, including a copy of the manifest, and efforts to reconcile the discrepancy, to the ~~Executive Secretary~~Director in accordance with UAC R315-8-5.4.

I.X. UNMANIFESTED WASTE REPORT

I.X.1 This report shall be submitted to the ~~Executive Secretary~~Director within 15 days of receipt of unmanifested waste in accordance with UAC R315-8-5.7.

I.Y. BIENNIAL REPORT

I.Y.1. A biennial report shall be submitted covering facility activities during odd numbered calendar years. This report shall be submitted by March 1 of the following even numbered year in accordance with UAC R315-8-5.6.

I.Z. OTHER NONCOMPLIANCE

I.Z.1 The Permittee shall notify the ~~Executive Secretary~~Director of all other instances of noncompliance with this Permit not otherwise required to be reported in accordance with Condition I.T., within seven days of discovering the noncompliance. The notification shall contain the information listed in Condition I.T. of this Permit. The Permittee shall follow up all notifications under this Condition with a written report submitted within 15 days of the initial notification of noncompliance. Reporting shall not constitute a defense for any noncompliance.

I.AA. OTHER INFORMATION

I.AA.1. Whenever the Permittee becomes aware that it failed to submit all relevant facts in a permit modification, or submitted incorrect information in a permit modification, or in any report submitted to the ~~Executive Secretary~~Director, the Permittee shall submit such facts or corrected information within seven working days of discovering the omissions.

I.BB. SIGNATORY REQUIREMENT

I.BB.1. All reports, notifications, submissions, or other information required by this Permit, or requested by and submitted to the ~~Executive Secretary~~Director shall be signed and certified in accordance with UAC R315-3-2.2.

I.CC. **CONFIDENTIAL INFORMATION**

I.CC.1. The Permittee may claim confidential any information required to be submitted by this Permit in accordance with Utah Code 63-2, the Government Records Access and Management Act.

I.DD. REPORTS, NOTIFICATIONS, AND SUBMISSIONS

I.DD.1. All reports, notifications, or other submissions ~~which~~ that are required by this Permit to be transmitted to the ~~Executive Secretary~~Director should be sent by certified mail or other means of proof of delivery to:

~~Executive Secretary~~Director
Utah Solid and Hazardous Waste Control Board
Division of Solid and Hazardous Waste
P.O. Box 144880
Salt Lake City, Utah 84114-4880
Phone: (801) 536-0200

Normal business hours are 7 am to 6 pm, Monday through Thursday, except for Utah State holidays. Required oral notifications shall be given only to the ~~Executive Secretary~~Director or an authorized representative of the ~~Executive Secretary~~Director. Notifications made at other times shall be made to the 24-hour answering service at 801-538-4123. Notifications made to the 24-hour answering service shall include all applicable information required by this Permit. The Permittee shall give oral notification to the ~~Executive Secretary~~Director or an authorized representative of the ~~Executive Secretary~~Director on the first business day following notification to the 24-hour answering service.

I.EE. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

I.EE.1. The Permittee shall maintain at the facility, for the periods specified, current copies of the following documents and amendments, revisions and modifications to these documents:

I.EE.1.a. A copy of the Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.b. All analytical data generated by the Waste Analysis Plans (Attachment 3), as required by UAC R315-8-2.4 and this Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.c. Inspection logs (Attachment 5), as required by UAC R315-8-2.6 and this Permit, for a period of three years in accordance with UAC R315-8-2.6(d).

I.EE.1.d. Personnel training documents (Attachment 7), and records, as required by UAC R315-8-2.7(d) and this Permit until closure for current employees, or for a period of three years for former employees in accordance with UAC R315-8-2.7(e).

I.EE.1.e. Contingency Plan (Attachment 6), as required by UAC R315-8-4 and this Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.f. Operating record, as required by UAC R315-8-5.3 and this Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.g. Closure Plan (Attachment 8), as required by UAC R315-8-7 and this Permit until closure is certified in accordance with Condition II.N.7.

I.EE.1.h. Cost estimates (Attachment 8) for the closure and post-closure of the HWMUs covered by this permit in accordance with Condition II.N.7.

I.EE.1.i. Manifest copies, as required by UAC R315-8-5 and this Permit for at least three years from the date the waste shipment was accepted at the facility or shipped off site to an approved TSDF.

I.EE.1.j. A copy of the Permittee's waste minimization statement until closure is certified in accordance with Condition II.N.7.

I.EE.1.k. A copy of the groundwater monitoring program (Attachment 9) for the assessment of the groundwater contamination and the data generated by that program until remediation has been completed in accordance with Module V of this Permit.

I.EE.1.l. A copy of all report, plans and documents related to the Corrective Action program identified in the RCRA Facility Investigation (RFI) Work Plan, October 2003 until corrective action has been completed in accordance with Module IV and V of this Permit.

I.FF. PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

I.FF.1. Pursuant to Section 3005(C)(3) of RCRA (Section 212 of HSWA) and R315-3-3.3(b)(2) [40 CFR 270.32(b)(2)], this Permit contains those terms and conditions determined necessary to protect human health and the environment.

I.GG. REIMBRUSEMENT OF REVIEW AND OVERSIGHT COSTS

I.GG.1. The Permittee shall reimburse the Department of Environment Quality for costs incurred in conjunction with review and oversight of the Permit and all plans, reports, procedures and protocols identified in this Permit in accordance with UCA 19-1-201(2)(i). These fees will be assessed for the activities including but not limited to the following: Review of Site Investigation and Remediation Plans, Sampling and Analysis Plans, Additional Investigation Plans, Site Management Plans, Corrective Action Plans, Corrective Measures Implementation Plans, No Further Action Petitions, Interim Measures, and Permit Modifications and Renewals; Review and Oversight of Administrative Consent Orders and Consent Agreements, Judicial Orders, and related compliance activities; Review and Oversight of Construction Activities; and Review and Oversight of Corrective Action Activities.

MODULE II - GENERAL FACILITY CONDITIONS

II.A. APPLICABILITY

II.A.1. The requirements of this Permit module pertain to all Hazardous Waste Management Units (HWMUs) identified within Module III.

II.B. DESIGN AND OPERATION OF FACILITY

II.B.1. The Permittee shall design, construct, maintain, and operate all of its HWMUs and surrounding areas to minimize the possibility of fire, explosion, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, groundwater, or surface water ~~which~~ that could threaten human health or the environment.

II.B.2. Any request for changes to ~~the~~ an existing HWMU shall be in accordance with UAC R315-3-4.3 and Condition I.D.6. Changes to the design and operation of a HWMU shall satisfy the requirements specified in this permit. Any changes to a HWMU must be documented on as-built drawings and with a Utah certified professional engineering certification as required by UAC R315-3-3.1(l)(2)(i).

II.B.3 After review of the as-built drawings and field verification of the facilities, the ~~Executive Secretary~~Director will notify the Permittee in writing of any change ~~which~~ that he concludes does not satisfy the operating requirements specified in this permit. If it is established that such changes are permit violations, the ~~Executive Secretary~~Director may require the Permittee to remove, replace, or modify any construction inconsistent with this permit.

II.C. REQUIRED NOTICE

II.C.1. As required by UAC R315-8-2.3(a)(1), the Permittee shall notify the ~~Executive Secretary~~Director in writing at least four weeks in advance of the date the Permittee expects to receive waste from a foreign source. Notice of subsequent shipments of the same waste from the same foreign source in the same calendar year is not required.

II.C.2. When the Permittee arranges to receive waste from an off-site source, the Permittee must inform the generator in writing that he has the appropriate Permit for and will accept the waste the generator is shipping. As required by UAC R315-8-2.3 (b), the Permittee shall keep a copy of the written notice as part of the operating record.

II.D. WASTE ANALYSIS PLAN

II.D.1. The Permittee shall follow the procedures of the Waste Analysis Plan in Attachment 3 of this Permit. In addition, the Permittee shall comply with any other conditions involving waste analysis in Modules I, II, III, IV, and V.

II.D.2. The Permittee shall use the test methods described in the Waste Analysis Plan in Attachment 3 or an equivalent procedure that satisfies Condition I.O.3 and 4. Changes in a test method described in the Waste Analysis Plan, as a result of an improvement or refinement of that method, may be adopted by the Permittee and incorporated into this Permit, in accordance with UAC R315-4-1.5 and Condition I.D.

II.D.3. The Permittee shall verify, using ~~if necessary~~ analytical ~~techniques~~techniques if necessary, the characteristics of each new or modified waste stream. The Permittee shall conduct an evaluation of each new waste stream generated on or off-site in compliance with UAC R315-8-2.4 and Attachment 3. Analysis of all new, existing, or modified waste streams shall be kept in the operating record.

II.D.4. Sampling of wastes to be stored at the Permittee's facility~~,~~ shall be performed in accordance with UAC R315-8-2.4 and Attachment 3. Generator knowledge may suffice in characterizing waste streams. The use of generator knowledge to characterize chemical and reactive waste shall detail the physical and chemical characteristics of the waste. All waste characterization information shall be maintained in the operating record.

II.D.5. At a minimum, the Permittee shall:

II.D.5.a. Maintain properly functioning sampling and analytical equipment;

II.D.5.b. Use approved sampling and analytical methods; and

II.D.5.c. Submit an updated list of parameters, analytical methods, and sample preparation methods in Attachment 3 on an annual basis. The updated list shall be submitted to the ~~Executive Secretary~~Director on or before January 15th of each calendar year.

II.D.6. Whenever the ~~Executive Secretary~~Director determines that the Permittee needs to update the analytical methodologies or the version(s) of SW-846 that are being used by the Permittee's analytical laboratory, the ~~Executive Secretary~~Director will submit written notification to Permittee. The Permittee shall notify the Utah Department of Health, Bureau of Laboratory Improvement of the requested update within 30 days of receipt of the ~~Executive Secretary~~Director's determination. The Permittee shall have 180 days from the receipt of the ~~Executive Secretary~~Director's written notification to complete the requested update. If it is not possible to complete the update within the prescribed time, the Permittee shall submit a written request for extension to the ~~Executive Secretary~~Director for approval.

II.D.7. If the Permittee uses a contract laboratory to perform analyses, the laboratory shall be certified by the State of Utah to perform the contracted analyses. For parameters for which certification is unavailable, the laboratory shall provide quality control/quality assurance data sufficient to assess the validity of the data. The Permittee shall inform the laboratory in writing that it must operate under the Waste Analysis Plan conditions set forth in this Permit.

II.E. **SECURITY**

II.E.1. The Permittee shall comply with security conditions and procedures contained in Attachments 2 & 5.

II.F. **GENERAL INSPECTION REQUIREMENTS**

II.F.1. The Permittee shall conduct inspections in accordance with UAC R315-8-2.6, and the procedures and schedule in Attachments 4 & 5. In addition, the Permittee shall comply with the inspection conditions described in Module III.

II.F.2. The Permittee shall remedy any deterioration or malfunction as required by UAC R315-8-2.6(c). If the remedy requires more than 72 hours to implement for emergency items as defined in Attachment 5.2.1 from the time that the problem is detected, the Permittee shall submit to the ~~Executive Secretary~~Director, before the expiration of the 72-hour period, a proposed time schedule for correcting the problem.

II.F.3. Records of inspections shall be kept as required by UAC R315-8-2.6(d).

II.G. **PERSONNEL TRAINING**

II.G.1. The Permittee shall conduct personnel training as required by UAC R315-8-2.7 and the training program outline found in Attachment 7. New personnel working assigned to hazardous waste management responsibilities shall complete the required personnel training within six months after their hire date, assignment to the facility or assignment to a new position at the facility. In addition, the Permittee shall comply with the following conditions:

II.G.1.a. Facility personnel shall take part in an annual review of their initial training in both contingency procedures and the hazardous waste management procedures relevant to the positions, which they are employed;

II.G.1.b. The Permittee shall maintain training documents and records as required by UAC R315-8-2.7(d) and UAC R315-8-2.7(e) and in accordance with the Training Plan in Attachment 7. These records shall indicate the type and amount of training received; and,

II.G.1.c. The Permittee shall maintain a copy of the Training Plan at the facility until the facility is fully closed and closure is certified.

II.H. **GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE**

II.H.l. The Permittee shall comply with the requirements of UAC R315-8-2.8.

II.H.2. In addition to the requirements of UAC R315-8-2.8, the Permittee shall comply with the

conditions of Module III pertaining to ignitable, reactive, or incompatible waste.

II.I. LOCATION STANDARDS

II.I.1. The Permittee shall comply with the location standards specified by UAC R315-8-2.9.

II.J. PREPAREDNESS AND PREVENTION

II.J.1. The Permittee shall follow the Preparedness and Prevention Plan in Attachment 5.

II.J.2. At a minimum, the Permittee shall equip and maintain at the facility, and keep in good operating condition, the equipment set forth in Attachment 5, as required by UAC R315-8-3.3.

II.J.3. The Permittee shall test and maintain the equipment specified in Condition II.J.2. as necessary to assure its proper operation in time of emergency.

II.J.4. The Permittee shall maintain records of the testing, maintenance, and repair activities specified in Condition II.J.3., and keep schedules, that identify the minimum and planned frequency for the performance of preventative maintenance activities in the operating record at the facility in accordance with Condition I.O.

II.J.5. The Permittee shall maintain access to the communications or alarm system as required by UAC R315-8-3.5.

II.J.6. At a minimum, the Permittee shall maintain aisle space that allows the unobstructed movement of personnel, fire protection equipment, discharge control equipment, and decontamination equipment to any area of the facility operations in an emergency in accordance with UAC R315-8-3.6. For the permitted storage areas, the Permittee shall maintain the aisle spaces identified in Module III and Section 4.4.1 – 4 of Attachment 4.

II.J.7. The Permittee shall attempt to make arrangements with state and local authorities as required by UAC R315-8-3.7. Any refusals to enter into an agreement shall be documented in the operating record.

II.K. CONTINGENCY PLAN

II.K.l. The Permittee shall immediately carry out the provisions of Attachment 6, and follow the emergency procedures described by UAC R315-8-4.7, whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which threatens or could threaten human health or the environment. The Permittee shall comply with Condition I.T. in reporting releases to the ~~Executive Secretary~~Director.

II.K.2. The Permittee shall comply with the requirements of UAC R315-8-4.4 and Condition I.E~~E~~.

II.K.3. The Permittee shall review the Contingency Plan in accordance with UAC R315-8-4.5 and shall modify in accordance with Condition I.D.6., if necessary.

II.K.4. A trained emergency coordinator shall be available at all times in case of an emergency, as identified in Attachment 6 and required by UAC R315-8-4.6.

II.L. MANIFEST SYSTEM

II.L.1. The manifest tracking number shall be recorded in the operating record with each waste load that leaves the Permittee's facility. UAC R315-5-2 and UAC R315-8-5 apply for all record keeping associated with the movement of these wastes.

II.L.2. The manifest tracking number shall be recorded in the operating record with each waste load that is received by the Permittee's facility. UAC R315-5-2 and UAC R315-8-5 apply for all record keeping associated with the movement of these wastes.

II.M. RECORDKEEPING AND REPORTING

II.M.1. The ~~Permitee~~Permittee shall maintain an accurate written operating record at the facility in accordance with UAC R315-8-5 and UAC R315-50-2.

II.M.2. The Permittee shall, by March 31 of each year, submit to the ~~Executive Secretary~~Director a certification pursuant to UAC R315-8-5.3, signed by the owner or operator of the facility, or an authorized representative, that the Permittee has a waste minimization program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable; and that the proposed method of treatment, storage, or disposal is the most practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

II.M.3. The Permittee shall comply with the biennial report requirements of UAC R315-8-5.6, by March 1 of each even-numbered reporting year. The report shall, at a minimum, include wastes generated, treated, and stored at the Permittee's facility during the previous odd-numbered year.

II.M.4. The Permittee shall submit additional reports to the ~~Executive Secretary~~Director in accordance with UAC R315-8-5.8.

II.M.5. All reports, notifications, application, or other materials required to be submitted to the ~~Executive Secretary~~Director shall be submitted at the address shown in Condition I.~~D~~D. and I.~~E~~E.

II.M.6. The Permittee shall maintain a copy of the certifications and reports required by Condition II.M.2. in the operating record and sign each certification in accordance with UAC R315-5-4.41(a)(8) and UAC R315-3-2.2(d)(1).

II.N. CLOSURE

II.N.1. The Permittee shall close the facility in accordance with UAC R315-8-7, UAC R315-101, and Attachment 8.

II.N.2. For all HWMUs, minor deviations from the approved Closure Plan procedures necessary to accommodate proper closure shall be described in narrative form with the closure certification statements. The Permittee shall describe the rationale for implementing minor changes as part of this narrative report. Within 60 days after completion of closure of each HWMU, the Permittee shall submit the certification statements and narrative report to the ~~Executive Secretary~~Director.

II.N.3. The Permittee shall amend the closure plan in accordance with UAC R315-4-1.5 and Condition I.D. whenever necessary, or when required to do so by the ~~Executive Secretary~~Director.

II.N.4. The Permittee shall notify the ~~Executive Secretary~~Director in writing of the partial closure of any portion of the facility in accordance with UAC R315-8-7. The Permittee shall notify the ~~Executive Secretary~~Director at least 180 days prior to commencement of final facility closure. The closure plan contained in Attachment 8 will be reviewed by the Permittee, and modified if necessary, before commencing partial or final facility closure. If the closure plan requires modification, the plan shall be modified and submitted to the ~~Executive Secretary~~Director for approval in accordance with Condition I.D.

II.N.5. After receiving the final volume of hazardous waste, the Permittee shall remove from the site all hazardous waste in accordance with the time frames specified in Attachment 8.

II.N.6. The Permittee shall decontaminate or dispose of all facility equipment, structures, soil, and rinsate as required by UAC R315-8-7, R315-8-9, and Attachment 8. Facility equipment, structures, and soil ~~which~~ that can ~~not~~ be decontaminated will be disposed of at a permitted TSDF.

II.N.7. The Permittee shall certify that the facility has been closed in accordance with the specifications in Attachment 8, as required by UAC R315-8-7, and shall provide a certification by an independent, Utah registered professional engineer qualified by experience and education in the appropriate engineering field.

II.N.8. On the five year anniversary date this Permit, the Permittee shall conduct a detailed evaluation of the closure cost estimates for the regulated unit and determine whether the annual adjustments for inflation have been adequate to update the closure cost estimates. The Permittee shall submit a report on this assessment and if necessary a modification of the Permit in accordance with Condition I.D. to the ~~Executive Secretary~~Director 90 days after the five year anniversary date of this Permit.

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II.N.9. The Permittee shall revise the closure cost estimate upon request by ~~within 30 days after~~ the ~~Executive Secretary~~Director ~~has approved the request to modify the facility Closure~~

~~Plan~~.

II.N.10. The Permittee shall maintain the latest, approved closure cost estimate in the operating record at the facility. ~~the latest, approved closure cost estimate at the facility. It shall be kept as Attachment 8-1 of this Permit.~~

II.N.11. In the event that any of the hazardous waste storage units covered by this Permit cannot be clean closed by decontaminating or removing contaminated structures and soil, or releases have occurred ~~which~~ that have impacted soil or groundwater, the Permittee shall modify the Closure Plan for that HWMU in accordance with UAC R315-4-1.5 and Condition I.D. Within 30 days of the date that the ~~Executive Secretary~~Director approves the modification, the Permittee shall close the unit in accordance with the applicable provision of UAC R315-8-7 and UAC R315-101.

II.N.12. If a HWMU can~~-~~not be clean closed, the Permittee shall submit a survey plat and property description for the HWMU with the submission of the certification of closure for the HWMU in accordance with UAC R315-8-7 and UAC R315-101.

II.O. FINANCIAL ASSURANCE FOR FACILITY CLOSURE

~~II.O.1. The Permittee shall demonstrate continuous financial assurance compliance by providing a third party financial assurance certification of at least the amount of the closure cost estimates described in Attachment 8. The Permittee may substitute other instruments of financial assurance provided the method, funding and wording requirements of UAC R315-8-8 are followed and approved by the Executive SecretaryDirector.~~

II.O.1. The Permittee shall demonstrate continuous compliance with UAC R315-8-8 by providing documentation of financial assurance, as required by UAC R315-8-8. Changes in financial assurance mechanisms shall be approved by the Director at least 60 days prior to such a change. On ten day notice from the Director, the Permittee shall direct any entity that is responsible for payment of closure costs, to provide copies of documents demonstrating the status of the financial assurance mechanism.

II.O.1. By July 30 of each calendar year, the Permittee shall adjust the closure cost estimate for inflation or submit the latest adjusted~~a revised~~ closure cost estimate for review and approval by the Director.~~, in accordance with UAC R315-8-8 and submit a copy of closure cost estimate to the Director, and maintain the latest adjusted closure cost estimate in the Operating Record.~~ After approval, the Permittee shall maintain the latest adjusted closure cost estimate in the operating record. For any new HWMU being placed into operation, an updated facility closure cost estimate must be prepared for the new unit(s), 60 days prior to waste being placed on or into the new unit.

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II.O.2. ~~The financial assurance document shall be updated within 60 days of the annual adjustment for inflation or within 60 days of the approval of a revised closure cost estimate in accordance with UAC R315-8-8.~~

II.O.2. The Permittee shall revise the closure cost estimate whenever there is a change in the facility's closure plan that would change the cost estimate as required by UAC R315-8-8.

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II.P. LIABILITY REQUIREMENTS

II.P.1. The Permittee shall demonstrate continuous compliance with the liability requirements of UAC R315-8-8 (40 CFR 264.147 incorporated by reference). The Permittee shall have and maintain hazardous waste liability coverage for sudden accidental occurrences in the amount of at least $1 million U.S. dollars per occurrence with an annual aggregate of at least $2 million U.S. dollars, exclusive of legal defense costs. The Permittee shall submit an approved certificate of hazardous waste liability insurance worded as required by UAC R315-8-8.

~~II.P.1. The Permittee shall demonstrate continuous compliance with UAC R315-8-8 by providing documentation of financial assurance, as required by UAC R315-8-8. Changes in financial assurance mechanisms shall be approved by the Director at least 60 days prior to such a change. On a ten day notice from the Director, the Permittee shall direct any entity that is responsible for payment of closure costs, to provide copies of documents demonstrating the status of the financial assurance mechanism.~~

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II.P.2. Changes in liability coverage mechanisms shall be approved by the ~~Executive Secretary~~ Director 60 days prior to such a change.

II.Q. INCAPACITY OF OWNER OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

II.Q.1. The Permittee shall comply with the notification and financial requirements of UAC R315-8-8, which incorporates by reference 40 CFR 264.148.

II.R. **RECEIPT OF OFF-SITE WASTE PROHIBITED**

II.R.1 The Permittee shall not receive hazardous wastes that are generated off-site except for:

II.R.1.a. Wastes generated by the Permittee during sampling, investigation, or remediation of sites contiguous or adjacent to the ~~the~~ Permittee's facility;

II.R.1.b. Wastes generated at another ATK owned or operated facility, and;

II.R.1.c. Rocket motor segments from any source may be accepted for storage prior to treatment at an off-site TSDF.

MODULE III - STORAGE IN CONTAINERS

III.A. APPLICABILITY

III.A.1. The requirements of this permit module pertain to the hazardous waste container storage operations at the Permittee's facility. The Permittee shall comply with UAC R315-8-9 and all conditions of this module. For the purposes of this permit, the hazardous waste container management areas are designated as: HS-1, ES-1, Resthouse 1 (RH-1), and Segment Storage.

III.B. WASTE IDENTIFICATION

III.B.1 The Permittee shall only store hazardous waste with the following waste codes in containers at the HS-1 chemical storage facility, subject to the terms of this permit:

D001, D002, D003, D004, D005, D006, D007, D008, D009, D010, D011, D018, D019, D021, D022, D028, D029, D035, D039, D040, F001, F002, F003, F004, F005, K044, P022, P056, U002, U003, U031, U044, U075, U080, U112, U117, U147, U151, U154, U159, U161, U196, U201, U209, U210, U211, U213, U219, U220, U225, U226, U228, U239, U240, U244, U246, U328, U359.

III.B.2 The Permittee shall only store hazardous waste with the following waste codes in containers at the ES-1 explosive storage facility, subject to the terms of this permit:

F001, F002, F003, F004, F005, D001, D003, D005, D008, K044

III.B.3 The Permittee shall only store hazardous waste with the following waste codes in containers at the RH-1 explosive storage facility, subject to the terms of this permit:

F001, F002, F003, F004, F005, D001, D003, D005, D008, K044

III.B.4 The Permittee shall only store hazardous waste with the following waste codes in containers at the Segment Storage explosive storage pad, subject to the terms of this permit:

F001, F002, F003, F004, F005, D001, D003, D005, D008, K044

III.C. CONDITION OF CONTAINERS

III.C.1. If a container holding hazardous waste is not in good condition (e.g., severe rusting, bulging, apparent structural defects) or it has begun to leak, the Permittee shall transfer the contents from this container, or the container itself, to a container in good condition or manage the waste in some other way that complies with UAC R315-8-9.2. This shall be completed as soon as possible, but no later than 24 hours from the time the problem was first discovered and noted in the inspection log.

III.D. COMPATIBILITY OF WASTE WITH CONTAINERS

III.D.1. The Permittee shall assure that all wastes are compatible with the storage containers as required by UAC R315-8-9.3.

III.E. MANAGEMENT OF CONTAINERS

III.E.1. The Permittee shall manage containers in accordance with UAC R315-8-9.4. A container holding hazardous waste shall always be closed during storage except when the Permittee is adding or removing waste from the container. The Permittee shall not store containers in a manner which may cause the containers to leak. The Permittee shall manage containers in accordance with this module of the Permit and the procedures identified in Attachment 4.

III.E.2. The Permittee shall maintain aisle space in each container management area that complies with Condition II.J.6.

III.E.3. HS-1 is the chemical storage area where the Permittee accumulates and consolidates the wastes identified in Condition III.B.1. HS-1 has a combined storage capacity of 15,900 gallons and is constructed as described in Attachment 2. The Permittee shall not exceed the storage capacity of Buildings 8562, 8567, 8568, and Sheds A and B as identified in Attachment 2. The Permittee shall comply with the following conditions for wastes stored in HS-1:

III.E.3.a. Liquids may be stored in Buildings 8562, 8567, 8568, and Sheds A and B located south of the main structure. Buildings 8562 and 8567 have secondary containment as described in Attachment 2. All liquid hazardous wastes regulated under state and federal law stored in Building 8568 and Shed A shall be stored on a containment pallet except waste packaged as lab packs per 49 CFR 173.12. All liquids stored in Shed B shall be stored in the small container storage cabinets described in Attachment 2 or on a containment pallet~~.~~. Whenever liquid wastes are stored on containment pallets, the Permittee shall maintain at least a 36-inch aisle space on two sides of the each containment pallet.

III.E.3.b. All non-hazardous waste stored in any of the HS-1 storage buildings shall count towards the total storage capacity of each building as identified in Attachment 2.

III.E.3.c. The largest liquid container containing hazardous waste that may be stored in Buildings 8567, 8568, and Sheds A and B shall be an 85-gallon over pack container. The largest liquid container that may be stored in Building 8562 shall be a 330-gallon tote bin provided that no incompatible waste issues exist and the Permittee maintains at least a 36-inch aisle space on two sides of the each tote bin.

II.E.3.d. The largest non-liquid container containing hazardous waste that may be stored in the storage buildings identified in Condition III.E.3. shall be a one-cubic yard box.

III.E.3.e. The 55-gallon drums, 85-gallon over pack containers and one-cubic yard boxes stored in Buildings 8562, 8567 and 8568 shall not be stacked more than two high. Tote bins and non-lab pack containers larger than 10 gallons that are stored in Building 8562 and Sheds A and B shall not be stacked. Containment pallets shall not be stacked.

III.E.3.f. Containers smaller than five gallons shall be stored in the small container storage cabinets, the refrigerator located in Building 8562 or a lab pack container.

III.E.3.g. The small container storage cabinets have a maximum storage capacity of 130 gallons. The Permittee shall not store more than 130 gallons of waste in any small container storage cabinets at any time.

III.E.3.h. Small containers received at HS-1 shall be processed within two business days as defined in Section 4.6 of Attachment 4.

III.E.4. ES-1 is an explosive storage area where the Permittee may store, accumulate, and consolidate the wastes identified in Condition III.B.2. The Permittee shall comply with the following conditions for wastes stored in ES-1:

III.E.4.a. ES-1 has a hazardous waste storage capacity of 20,000 pounds. The Permittee shall not exceed the storage capacity of ES-1.

III.E.4.b. The 55-gallon containers and SLIDs (Slum-in-a-Drum) shall not be stacked. The 30-gallon fiber drums shall not be stacked more than two high. Slum bags, as defined in Section 4.2.1 of Attachment 4, may be accumulated and stacked inside empty SLIDs.

III.E.4.c. Wastes containing free liquids shall not be stored at ES-1.

III.E.4.d. Nitroglycerine (NG) remover shall not be stored at ES-1.

III.E.5. RH-1 is an explosive storage area where the Permittee may store, accumulate, and consolidate the wastes identified in Condition III.B.3. The Permittee shall comply with the following conditions for wastes stored in RH-1:

III.E.5.a. RH-1 has a hazardous waste storage capacity of 150,000 pounds. The Permittee shall not exceed the hazardous waste storage capacity of RH-1.

III.E.5.b. RH-1 has a total storage limit of 250,000 pounds. The Permittee shall at all times maintain a detailed inventory for RH-1 that clearly identifies the type and quantity of waste and product stored in RH-1. The Permittee shall not exceed the total storage limit for RH-1.

III.E.5.c. The Permittee may store the following containers at RH-1: whole or sectioned rocket motors, drums manufactured from steel, plastic or fiber not to exceed 85-gallons in

capacity, SLIDs, anti-static or conductive plastic bags, slum pots, fiber, plastic or wooden boxes not to exceed 119 gallons in capacity and sling bags not to exceed 119 gallons in capacity. If the Permittee needs to store a container not listed above at RH-1, the Permittee shall modify the Permit in accordance with Condition I.D.

III.E.5.d. The rocket motors, 55-gallon drums, SLIDs, and slum pots shall not be stacked. The 30-gallon fiber drums shall not be stacked more than two high. Slum bags may be stacked inside empty SLIDs.

III.E.5.e. Wastes containing free liquids shall not be stored at RH-1.

III.E.5.f. NG remover shall not be stored at RH-1.

III.E.6. Segment Storage is an explosive storage area where the Permittee may store, accumulate, and consolidate the wastes identified in Condition III.B.4. The Permittee shall comply with the following conditions for wastes stored in Segment Storage:

III.E.6.a. Segment Storage has a hazardous waste storage capacity of 75,000 pounds of Class 1.3 explosive material. The Permittee shall not exceed the storage capacity for Segment Storage.

III.E.6.b. All products stored at Segment Storage shall count towards the total storage capacity of the unit (75,000 pounds).

III.E.6.c. Class 1.1 explosive materials shall not be stored at Segment Storage.

III.E.6.d. The Permittee may store Class 1.3 products at Segment Storage, but the Permittee shall not store product and waste on the pad at the same time.

III.E.6.e. The Permittee may store the following containers at Segment Storage: whole or sectioned rocket motors, drums manufactured from steel, plastic or fiber not to exceed 85-gallons in capacity, SLIDs, anti-static or conductive plastic bags, slum pots, fiber, plastic or wooden boxes not to exceed 119 gallons in capacity, and sling bags not to exceed 119 gallons in capacity. If the Permittee needs to store a container not listed above at Segment Storage, the Permittee shall modify the Permit in accordance with Condition I.D. Whole and sectioned rocket motors shall be stored on trailers or storage chocks. All other containers shall be stored inside enclosed locked trailers.

III.E.6.f. The rocket motors and SLIDs shall not be stacked. The 55-gallon drums and the 30-gallon fiber drums shall not be stacked more than two high.

III.E.6.g. Wastes containing free liquids shall not be stored at Segment Storage.

III.E.6.h. NG remover shall not be stored at Segment Storage.

III.E.6.i. Rocket motors and trailers holding containers that are stored at Segment Storage shall be grounded at all times.

III.F. CONTAINMENT UNITS

III.F.1. The Permittee shall construct, maintain, and operate the containment system in accordance with Attachments 2 and 4. The containment systems shall be free of cracks, gaps and sufficiently impervious to contain leaks, spills and precipitation.

III.F.2. The Permittee has two liquid storage areas at HS-1 where secondary containment has been constructed. Buildings 8562 and 8567 have a secondary containment capacity of 165 and 690 gallons respectively. The Permittee shall conduct a weekly inspection of the secondary containment systems in Building 8562 and 8567 to insure that the coating or sealant on the floor and containment basins, and that caulking in the concrete joints are in good condition. The inspection shall, at minimum, check for cracks, gaps, and chips in the concrete flooring, sumps and curbing, the condition of the coating or sealant, and caulking.

III.F.3 The Permittee has eight cabinets and a refrigerator for small container storage. Five are located in Building 8567 and three are located in Shed B. Each cabinet also has a built-in secondary containment capacity of 13 gallons. The refrigerator is located in Building 8562 and does not have secondary containment. The Permittee shall provide secondary containment for all liquid hazardous wastes regulated under state or federal law stored in the refrigerator and separate containment for incompatible wastes. The Permittee shall conduct a weekly inspection of the built-in secondary containment in each of the small container storage cabinets. The inspection shall, at minimum, check for cracks and gaps in the containment and the condition of the coating or sealant, and caulking of the containment basins.

III.F.4 The secondary containment systems in Buildings 8562 and 8567, the cabinets, and refrigerator identified in Conditions III.F.2. and III.F.3. shall be inspected at least weekly. Any liquids observed in any of the secondary containment systems during an inspection shall be removed within 24 hours of discovery.

III.F.5. Any time liquids are stored on a containment pallet in any of the HS-1 storage areas, the Permittee shall inspect the containment pallet, at least weekly for liquids. Any liquids observed in any of the secondary containment systems during an inspection shall be removed within 24 hours of discovery.

III.G. SPECIAL REQUIREMENTS FOR IGNITABLE AND REACTIVE WASTE

III.G.1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line.

III.G.2. For ignitable and reactive wastes stored at HS-1, the Permittee shall comply with UAC R315-8-2.8 and the requirements specified in Attachment 4, Section 4.4.1.

III.G.3. For the explosive storage units, the Permittee shall comply with UAC R315-8-2.8 and the quantity distance requirement specified in Attachment 2, Section 2.3.

III.H. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE

III.H.1. The Permittee shall not place incompatible waste or materials in the same container and shall comply with UAC R315-8-2.8.

III.H.2. The Permittee shall not place hazardous waste or materials in an unwashed container that previously held an incompatible waste or material.

III.H.3. Whenever incompatible wastes are stored in the same containment area, the containers shall be isolated from one another using a containment pallet. The incompatible wastes shall be separated by an aisle space of at least 36 inches. Alternatively, waste materials packaged as lab packs shall be segregated as per the requirements in 49 CFR 173.12(e).

III.H.4. The Permittee shall document compliance with Conditions III.H.1., III.H.2 and III.H.3. as required by UAC R315-8-2.8(c) and place the documentation in the operating record.

III.I. IDENTIFICATION AND LOCATION OF CONTAINERS IN THE OPERATING RECORD

III.I.1. The Permittee shall record in the operating record the location of each container of hazardous waste stored at any hazardous waste container storage area identified in Condition III.A. until the container is manifested off-site, or treated at the NIROP Burning Grounds. The Permittee shall track hazardous waste storage, treatment and off-site management of wastes using the waste tracking systems described in Attachment 4, Sections 4.3.

III.J. INSPECTIONS

III.J.1. The Permittee shall conduct inspections of the storage areas identified in Condition III.A. of this Permit in accordance with the schedule outlined in Attachment 5.

III.K. STORAGE OF WASTES FOR LONGER THAN ONE YEAR

III.K.1. The Permittee may store hazardous waste for more than a year provided the Permittee submits written notification to the ~~Executive Secretary~~Director prior to exceeding the one year time limit. This provision applies only to the following hazardous wastes:

III.K.1.a. Waste explosives designated for disposal at Utah Test and Training Range (UTTR) where disposal arrangements and/or approvals cannot be completed within one year.

III.K.1.b. Waste rocket motors or motor sections that lack adequate approvals to ship off-site and/or lack sensitivity data to develop an appropriate disposal plan.

III.K.1.c. Small containers of off-specification commercial chemical products stored at HS-1 when there is not an adequate volume to fill a lab pack container or the Permittee has had difficulty in arranging disposal at a TSDF or been unable to find an approved TSDF.

III.K.2. Whenever the Permittee is storing any of the waste streams identified in Condition III.K.1.a, III.K.1.b, and III.K.1.c, the Permittee shall submit a written report to the ~~Executive Secretary~~Director on or before January 31st of each calendar year. This report shall provide a detailed description of the waste, where it is stored, and the Permittee's efforts to arrange treatment and/or disposal.

III.L. CLOSURE/POST CLOSURE

III.L.1. The Permittee shall close the storage areas in accordance with UAC R315-8-7, UAC R315-8-9.9, Condition II.N, and Attachment 8 of this permit.

MODULE IV – SWMU CORRECTIVE ACTION PROGRAM (CAP)

IV.A CORRECTIVE ACTION PROGRAM

IV.A.1. The Permittee shall conduct a CAP ~~-~~for all Solid Waste Management Units (SWMUs) and Hazardous Waste Management Units (HWMUs) identified in the most recent modification of ~~Table 1~~Table 1-1 in Attachment 9.~~Attachment ?~~, The Groundwater Management Unit (GWMU) shall be managed in accordance with Module V of this Permit.

IV.A.2 The Director may add HWMUs or SWMUs to ~~Attachment ??Table 1~~Table 1-1 of Attachment 9 as described in Condition IV.H.

IV.A.3. This Permit has been developed in accordance with the applicable requirements of UAC R315-1 through 101. All conditions within this Permit shall ~~supercede~~supersede conflicting statements, requirements, or procedures found in UAC R315-1 through 101 or attachments to this Permit.

IV.A.4 At the ~~end~~ completion of the CAP the Permittee shall conduct a site-wide ecological risk assessment.

IV.B STANDARD CONDITIONS

IV.B.1 Failure to submit the information required in this Module or falsification of any submitted information is ground for enforcement action.

IV.B.2 The Permittee shall submit a minimum of ~~three~~two copies of each plan ~~and~~ or report to the Director. The document shall also be submitted in an acceptable ~~One of the three copies shall be in~~ electronic format.

IV.B.3 Upon written approval by the Director, all final plans, schedules, and reports required by the conditions in Module IV are incorporated by reference into Module IV. Any non-compliance with such approved plans and schedules shall be deemed non-compliance with this permit and may be subject to enforcement action.

IV.B.4 The Permittee shall submit all draft final, ~~and~~ final plans, ~~and~~ reports, and schedules as specified in Conditions below. The Permittee shall revise draft final plans, ~~and~~ reports, and schedules in the time frames specified by the Director. The Permittee may request an extension to these schedules for approval by the Director.

IV.B.5 The ~~Permittee~~Permittee shall ~~only~~ notify the Director of planned ~~field work~~fieldwork once the plan for the specific ~~field work~~fieldwork has been approved by the Director. The Permittee shall provide the Director with ~~(~~7~~)~~ days notification before conducting any sampling or other activities specified in the approved plans and reports described in this Module. All raw data, such as sample results, laboratory reports, drilling logs, bench scale or pilot scale data, survey data and other supporting information gathered or generated during activities undertaken pursuant to Conditions in this module shall be maintained at ATK during the effective term of this permit, unless the Director approves alternate timeframes upon request of the Permittee. The Permittee shall provide copies of reports, logs, and other data to the Director upon request.

IV.B. 6 All plans for remediation work, to include both corrective and interim actions, shall contain ~~detailed~~ sections discussing ~~g~~ procedures and physical processes for classification and containment of any hazardous waste~~s identified~~ identified. These procedures shall be site specific and include provisions for both expected and the potential for unexpected waste. For sites that include uncharacterized waste, generated waste shall be handled in a manner to minimize dispersion of the waste to the environment. Waste shall be characterized within 90 days of generation/excavation. ~~If the waste is determined to be hazardous, it shall be placed in labeled and dated containers within 72 hours of the waste determination.~~

IV.C. PRIORITIZATION AND TRACKING

IV.C.1. The Permittee has prioritized the SWMUs and HWMUs into thirteen groups. The ~~SWMU~~SWMU and HWMU investigation priority list is included in ~~Attachment ??, Table 1~~Table 1-1 ~~1~~ of Attachment 9. The Permittee shall update and submit ~~Attachment ? Table 1~~Table 1-1 ~~1~~ to the Director for approval by January 15th of every calendar year for the life of the Permit or until the corrective action program is complete and the Director has concurred.

IV.C. 2 Included with ~~Attachment ?? Table 1~~Table 1-1 ~~1~~, submitted to the Division in accordance with Condition IV.C.1~~B.2~~, the Permittee shall submit a SWMU and HWMU investigation schedule for the upcoming calendar year for approval to the Director. This schedule shall identify when the Permittee plans to submit the RFI, CMI~~P~~, Interim Measures, or other ~~or othe~~r ~~workplans~~work plans and reports for a SWMU or groups of SWMUs identified in ~~Attachment Table 1~~Table 1-1 ~~1~~.

IV.C.3. ~~The Permittee shall update the summary tables for the SWMUs and HWMUs identified in Attachment 9 by January 15th of every even number year from the issuance of this Permit in accordance with Condition I.D.6. These summary tables shall include, at a minimum, a description of the SWMUs and the materials or wastes that it handled, and a summary of any site characterization data, corrective action work completed and the status of the unit. Attachment 9 will be part of the operating portion of the RFI Work Plan. Is this updating still necessary?? or can we take this condition out or just make it applicable to newly identified SWMUs???~~

IV.C.~~4~~3. Conditions IV.C~~B~~.1 and IV.C.2~~3~~ apply to newly identified SWMUs.

IV.D. RCRA FACILITY INVESTIGATION (RFI) AND RFI REPORT

IV.D.1. The Permittee shall conduct an RFI for each SWMU identified in ~~Table 1~~Table 1-1~~Attachment 9~~, in accordance with the approved RFI Work Plan. The objective of the RFI is to determine the nature, magnitude, and extent of known and suspected releases of solid and/or hazardous wastes and constituents. The data collected during the RFI shall be used to support the evaluation of risk to human health and the environment and natural resources and a final site recommendation as described in Condition IV.D.5. for a SWMU and or group of ~~SWMUs~~SWMUs.

IV.D.2. RFI ~~workplan~~Work Plans shall address data quality according to the requirements in quality assurance project plan (QAPP) in Appendix C2. ~~Site specific~~Site-specific data quality requirements shall also be addressed as needed.~~.~~

IV.D.3.~~2.~~ The RFI ~~Workplan~~Work Plans described in Condition IV.D.1. shall be developed in

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accordance with ~~the~~ a ~~site specific~~site-specific conceptual model for each SWMU or group SWMUs~~, the information in Attachment ?~~ and R315-101. Each work plan shall ~~and~~ be submitted to the Director for approval. The Permittee shall implement all RFI ~~Workplan~~Work Plans ~~according~~ to the schedule provided in each approved final RFI ~~Workplan~~Work ~~.~~Plan. The Permittee may modify the RFI implementation schedule upon approval by the Director.

IV.D.~~43~~. Within ~~14~~ days of obtaining all information needed to prepare the RFI Report, ~~completing the field portion of any approved RFI Workplan ,~~ the Permittee shall provide a schedule for submittal the ~~of an~~ RFI~~-~~ Report~~-~~ to the Director for approval.

IV.D.~~45~~. The RFI Report shall be submitted for approval ~~by~~ to the Director as described in IV.D.5., and shall include the following: ~~-~~1) all data collected during the RFI and other relevant data held ~~-~~by the Permittee, 2) a description of the nature and extent of contamination at the site, 3) human health and ecological risk assessment and an evaluation of the potential for impacts to natural resources as defined in R315-101, and 4) if the RFI Report recommends corrective action for a specific ~~SWMU~~SWMU or group of SWMUs, the RFI Report shall include an evaluation of possible corrective measures technologies and recommend a technology or remedy. The Director may approve use of the corrective measures technology described in the RFI Report or may require a more extensive Corrective Measures Study (CSM) and submittal of a CMS Report. ~~Add CMS language ???~~

~~The RFI Report shall also include information as required in Attachment ??~~

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IV.D.~~56~~ The RFI Report shall include one of the following recommendations for each ~~SWMU~~SWMU or group of SWMUs~~-~~ 1) additional sampling as described in IV.D.7, 2) No Further Action (NFA) as defined in R315-101~~-~~, 3) corrective action as defined in R315-101, or 4) site management without corrective action as defined in R315-101.

IV.D.~~67~~ If the Director or the Permittee determine additional information or sample data is needed to support~~-~~ the recommendations in Condition IV.D.5, the Permittee shall amend the RFI report and include a schedule for submittal of a Phase II RFI Wo~~k~~rk ~~rp~~Plan for approval by the Director. The scheduling, work implementation, and RFI report submittal requirements in Conditions IV.D.1-6 apply to Phase II RFI ~~Workplan~~Work Plans and Phase II RFI Reports.

IV.D.~~78~~ A determination of NFA in accordance with ~~Condition IV.D.5 and~~ R315-101~~-~~, shall not preclude the Director from requiring further investigations, studies, or remediation at a later date if new information or subsequent analysis indicates an actual or potential release has/may occur from a SWMU at the Permittee's facility.

IV.E. SITE MANAGEMENT PLANS

IV.E.1. Any SWMU that does not meet the NFA requirements of R315-101 and does not need corrective action, or any ~~SWMU~~SWMU or group of SWMUs that needs site management following corrective action, ~~(e.g., groundwater cleanup, capped landfill etc)~~ as described in UAC R315-101, must be managed to control the risk to human health and the environment. Following the Director's approval of an RFI Report proposing site management without corrective action, or where site management will be needed following corrective action, the Permittee shall develop a Site Management Plan (SMP). The SMP shall meet the requirements of R315-101 and at a minimum include the following:

IV.E.1.a. A description of the SWMU and summary of the site characterization as described in the RFI

Report, including a summary of the magnitude, nature, and extent of the contamination;

IV.E.1.b. A summary of the conclusions of the risk assessment in the RFI Report, including identification of all potential receptors, and ~~the~~ a conceptual model that describes the actual and potential human and environmental impact(s) from the residual contaminants at the site;

IV.E.1.c. A detailed description of how the risk at the SWMU will be managed to protect human health and the environment (e.g., fencing, inspection, maintenance, monitoring, etc.);

IV.E.1.d. An inspection program that will be used to monitor the ~~SWMU~~SWMU or group of SWMUs ~~and~~ to ensure that the site conditions have not changed and that the site conceptual model is still appropriate. The inspection program shall include, at a minimum, a description of what will be inspected, the inspection frequency, a description of what the inspector should evaluate, ~~and~~ how to document and resolve problems, and an inspection checklist;

IV.E.1.e. Photos and figures, as needed, to describe the ~~SWMU~~SWMU or group of SWMUs, show the location, explain access, and ~~or~~ highlight distinctive features;

IV.E.1.f. An environmental covenant developed in accordance with UCA Section 57-25-101 et seq., and;

IV.E.1.g. A legal description and survey plat of the property.

IV.E.2. Within 90 ~~-~~days of Director approval ~~f~~of~~o~~ the RFI Report, the Permittee shall submit an SMP to the Director for approval. The Director shall provide for public participation prior to approving a SMP as required by UAC R315-101-7.

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IV.E.5. The Permittee shall implement the SMP within 30 days of receipt of approval by the Director. If approval of the SMP or environmental covenant is delayed, the Director may require the Permittee to begin inspection, maintenance, monitoring, or other activities prior to SMP approval.

IV.F. CORRECTIVE ACTION

IV.F.1 If the approved RFI Report recommends corrective action the Permittee shall submit to the Director for approval a Corrective Measures Implementation Plan (CMIP). The CMIP shall be designed to implement the remedy selected in the RFI Report or CMS Report and shall be submitted according to the schedule contained in the approved RFI Report or CMS Report. This schedule may be modified upon approval by the Director ~~approval~~. The CMIP shall include:

IV.F.1.a. An introduction describing the overall purpose of the corrective action;

IV.F.1.b. A summary on the current conditions and conceptual site model for SWMUs included in the CMIP;

IV.F.1.c. Corrective measure objectives, including proposed media cleanup standards;

IV.F.1.~~e~~d. A detailed description of any proposed or completed pilot, laboratory, and/or bench scale studies that the Permittee has or will conduct in conjunction with the implementation of this CMI~~A~~P;

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IV.F.1.~~g~~e A description of ~~long term~~long-term data collection, monitoring, or other requirements that ~~will~~ may ~~be~~ needed as part of a long-term site management plan.

IV.F.~~2~~1.~~f~~a. Engineering design plans and specifications for the approved corrective measure(s);

IV.F.~~2~~1.~~g~~b. ~~A CMI Project Management Plan;~~ can we take out Yes -

IV.F.~~2.e~~1.g. Operation and Maintenance Plan for the approved corrective measure(s), if applicable~~,~~;

IV.F.~~2.d~~1.h. A monitoring plan that describes how the effectiveness of the approved corrective measure will be assessed;

IV.F.~~2.e~~1.i. Completion criteria to determine when corrective measures have achieved the cleanup objectives;

IV.F.~~2.f~~1.j. A Construction ~~Workplan~~Work Plan and construction quality assurance objectives, if applicable;

IV.F.~~2.g~~1.k. A schedule for the implementation of the corrective measures~~.~~;

IV.F.~~2.h~~1.l Detailed plans for confirmation soil sampling or other sampling and sample quality control. Data quality requirements are included in Appendix C.~~2~~ Site specific data quality requirements shall also be addressed as needed; and,

IV.F.~~2.i~~1.m Detailed plans for waste management and documentation of waste disposal.

IV.F.~~3~~2. Upon approval of the CMIP ~~Plan~~, the Permittee shall implement the corrective measure(s) according to the schedule contained in the CMIP ~~Plan~~.

IV.F.~~4~~3. The CMI Report will be submitted according to the schedule in each approved CMIP ~~Plan~~. This schedule ~~may~~ be updated as needed based on cleanup progress. The CMI ~~r~~Report shall certify that the project was built according to the design plans and specifications, and that the corrective measure is performing adequately. The report shall also include, at a minimum, the following elements:

IV.F.~~4~~3.a. A summary on the construction of the corrective measure(s), including any deviation or modification to the design plans and specifications;

IV.F.~~4~~3.b. Construction quality assurance documentation in accordance with UAC R315-8-2.10., and;

IV.F.~~4~~3.c. As-built drawings and photographs.

IV.G. INTERIM MEASURES (IM)

IV.G.1 If at any time during the CAP the Permittee or the Director determine a release or a potential release of sol~~d~~id or hazardous waste or hazardous waste constituents from a SWMU poses a threat to human health, environment, or natural resources, the Director may require the Permittee to perform interim measures, or the Permittee may voluntarily perform interim measures. In determining the need for interim ~~measures~~measures, the Director or the

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Permittee shall consider the following:

IV.G.1.a The actual or potential exposure(s) to human or environmental receptors;

IV.G.1.b. The potential for further degradation of environmental media absent of any interim measure;

IV.G.1.~~d~~c. The presence of containers of solid or hazardous waste constituents that may result in a release or represent a compliance issue;

IV.G.1.~~e~~d. Presence and concentration of solid or hazardous waste constituent(s) in soils that have the potential to migrate to surface or ground water;

IV.G.1.~~f~~e. Weather conditions that may increase the potential migration or leaching of contamination;

IV.G.1.~~g~~f. Risks of fire, explosion, or accident;

IV.G.1.~~h~~g. The time required to develop and implement a final remedy; and,

IV.G.1.~~i~~h. Funding, contracting, or other administrative situations.

IV.G.2. If the Director or the Permittee determine the need for IM the Permittee shall submit an IM Plan for Director approval.

IV.G.3. The IM Plan shall identify specific actions to be taken to implement the IM and an implementation schedule. The IM Plan shall be incorporated into this permit upon Director approval, and may be subject to public comment as determined necessary by the Director. The IM Plan shall include the following:

IV.G.3.~~b~~a. Sampling plan, data collection, quality assurance project plan, and data management plan;

IV.G.2.~~c~~b. The design plans and specifications, construction requirements, operation and maintenance requirements, project schedules, and final design documents;

IV.G.2.~~d~~c. The construction quality assurance objectives, inspection activities, sampling requirements, and documentation; and,

IV.G.2.~~e~~d. A schedule for submittal of progress reports and final ~~i~~Interim ~~m~~Measures report.

IV.G.3. The Permittee shall implement the IM Plan as described in the approved IM Plan.

IV.G.4 The Permittee shall submit an IM Report and meet the RFI reporting and other requirements of Condtions IV.D.1-7.

IV.H. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY IDENTIFIED SOLID WASTE MANAGEMENT UNITS

IV.H.1 The Permittee shall notify the Director in writing within ~~9~~30 ~~-~~days of discovery of any newly identified sites, which the Permittee believes may meet the definition of a SWMU or HWMU. Upon notification, the Director and Permittee shall schedule a visit to the site(s). During the site ~~visit~~visit, the Permittee shall present available information about the site as need to justify a decision about the status of the site. These decisions ~~include~~shall determine

whether: -1) ~~a determination~~ the site ~~is not~~ should be declared a SWMU or HWMU; 2) ~~a determination~~ the site will be addressed through the process outlined in Condition IV.G for interim measures (if managed as an interim measure the site does not need to be added to ~~Attachment ??, Table 1~~Table 1-1 of Attachment 9~~-1~~), ~~and~~ or 3) ~~a determination that~~ the site is a SWMU and must be added to ~~Attachment ??, Table 1~~Table 1-1~~-1~~ and ~~the SWMU~~ will be included in the RFI program.

IV.H.2 If information is presented during the decision making process described in Condition IV.H.1., that the hazardous wastes ~~may~~ were or may have been placed in ~~a~~ the newly identified SWMU after November 19, 1980, the Director may consider the site as a HWMU (non-notifier) and require the Permittee to close the unit under the requirements of R315-7 and R315-101.

IV.H.3 Within 30 ~~-~~days of making a decision as described in Condition IV.H.1, the Permittee shall provide a schedule for submittal of an interim measures plan or an RFI ~~Workplan~~Work Plan.

IV.H.4 The RFI ~~Workplan~~Work Plan or Interim Measures plan for the newly identified ~~SWMU~~SWMU(s) shall meet the requirements and follow the process outlined in Conditions IV.D and IV.G.

IV.I. REPORTING REQUIREMENTS

IV.I.1 In addition to the reporting requirements in this module the Permittee shall submit to the Director for approval written quarterly progress reports of activities conducted pursuant to the Conditions of this module. The progress reports may be letter reports or minutes from programmatic update meetings.

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IV.I.2. The Director may require the Permittee to conduct new or more extensive assessments, investigations, or studies, as needed, based on information provided in these progress reports or other supporting information.

IV.~~K~~J. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

IV.~~K~~J.1. The Permittee shall be financially responsible for the development and implementation of the corrective action program in accordance with UAC R315-8-6.12(b).

IV.~~L~~K. PUBLIC PARTICIPATION

IV.~~L~~K.1. Prior to approving any ~~S~~RFI~~AP~~, CMIP ~~CAP~~, IMP, SMP, or NFA petition, the Director may provide for public participation as defined by UAC R315-101-7.

MODULE V – GWMU CORRECTIVE ACTION PROGRAM

V.A. APPLICABILITY

V.A.1. The Permittee shall implement a corrective action program for the Groundwater Management Unit (GWMU) identified in the RCRA Facility Investigation Work Plan in accordance with UAC R315-8-6.11 and this module. The purpose of this program shall be to remove or treat any groundwater contaminants that present a risk to human health or the environment.

V.A.2. The time frames and submittal dates in this Module ~~supercede~~supersede all previous agreements, orders, and plans regarding corrective action. This permit has been developed in accordance with the applicable requirements of UAC R315-1 through 101. The conditions in Module V shall ~~repalce~~replace the Permittee's obligations under Stipulation and Consent Order, No.8606396 regarding the investigation, monitoring, and cleanup of the groundwater contamination related to the Permittee's facility.

V.A.3. This Permit has been developed in accordance with the applicable requirements of UAC R315-1 through 101. All conditions within this Permit shall ~~supercede~~supersede conflicting statements, requirements, or procedures found in UAC R315-1 through 101 or attachments to this Permit.

V.B. GROUNDWATER MODELING

V.B.1. The Permittee shall maintain a program to monitor the migration of the solid and hazardous constituents as required by UAC R315-8-6 and included in Attachment 10 of this Permit.

V.B.2. The Permittee shall maintain an approved groundwater flow and contaminant transport model for the groundwater contamination at the Permittee's facility.

V.B.3. The Permittee shall assess the approved groundwater flow and contaminant transport model annually using the previous year's water level data and determine whether recalibration is necessary. If the new groundwater elevations or contaminant concentrations do not show any differences from those measured for the previous groundwater model calibration, the Permittee may petition the ~~Executive Secretary~~Director to postpone the groundwater model recalibration.

V.B.4. The Permittee shall submit an annual groundwater report ~~Executive Secretary~~Director on or before March 31st of each calendar year.

V.B.5. The report shall include a discussion of the assessment and/or recalibration effort or the petition to postpone, which shall, at a minimum, include an evaluation of boundary conditions, an assessment of the degree of error between calibrated and measured groundwater elevations and between calibrated and measured contaminant concentrations, as well as the electronic data file for the previous year's water levels and analytical results,

V.C. RISK ASSESSMENT

V.C.1 Within 90 days of issuance of this Permit, the Permittee shall submit to the ~~Executive Secretary~~Director for approval a proposed risk-assessment protocol document for the human-

health and ecological risk assessment for the groundwater contamination at the facility. The protocol document shall describe and define methodologies and scenarios that will be employed to evaluate the human-health risk assessment.

V.C.2. Within 180 days of receipt of approval of the risk assessment protocol document defined in Condition V.C.1., the Permittee shall submit a human-health risk assessment for the groundwater contamination to the ~~Executive Secretary~~Director, in accordance with UAC R315-101.

V.C.3. Within one year of receipt of approval of the risk assessment protocol document defined in Condition V.C.1., the Permittee shall submit an ecological risk assessment to the ~~Executive Secretary~~Director, in accordance with UAC R315-101.

V.D. CORRECTIVE MEASURES STUDY

V.D.1. The Permittee shall submit a Corrective Measures Study (CMS) for the remediation of the groundwater contamination to the ~~Executive Secretary~~Director within 180 days of approval of the risk assessment required in Condition V.C. of this Permit. The CMS shall include, at a minimum, the following:

V.D.1.a. An introduction describing the overall purpose of the CMS;

V.D1.b. A summary on the current conditions of the contaminant plume, the findings of the groundwater flow/contaminant transport model and risk assessments, and all interim corrective measures that have been implemented to control human exposures to the groundwater contamination and to control the spread of the groundwater contamination;

V.D1.c. Corrective measure objectives, including proposed media cleanup goals, levels or standards;

V.D1.d. An evaluation of potential corrective measure technologies which includes an assessment of the long-term reliability, effectiveness and implementability of the alternatives;

V.D.1.e. A detailed description of all existing or proposed pilot, laboratory and/or bench scale studies. Pilot or bench scale studies already conducted by the Permittee may be incorporated into the CMS;

V.D.1.f. A proposal for corrective measures that shall satisfy corrective measure objectives, attain proposed media cleanup goals, levels or standards, control the sources of releases, and comply with applicable standards for the management of wastes; and

V.D.1.g. A public participation plan.

V.E. CORRECTIVE MEASURES IMPLEMENTATION

V.E.1. Within 90 days of approval of the CMS by the ~~Executive Secretary~~Director, the Permittee shall submit a Corrective Measures Implementation Plan (CMI). The CMI Plan shall be submitted to the ~~Executive Secretary~~Director for approval. The CMI Plan shall describe in detail how the approved corrective measure(s) for contaminated groundwater will be implemented. The CMI Plan shall, at a minimum, include the following:

V.E.1.a. An introduction describing the overall purpose of the CMI Plan;

V.E1.b. A summary/review of the approved corrective measure(s), which shall include the cleanup objectives that the Permittee plans to achieve;

V.E.1.c. Design plans and specifications for the approved corrective measure(s);

V.E.1.d. A Construction Workplan that includes a construction quality assurance program;

V.E.1.e. The Operation and Maintenance Plan for the corrective measure(s);

V.E.1.f. A Groundwater Monitoring Plan designed to demonstrate the effectiveness of the corrective measure(s);

V.E.1.g. Corrective Measure(s) Completion Criteria designed to determine when the corrective measure(s) have achieved the cleanup objectives;

V.E.1.h. Data management and documentation procedures;

V.E.1.i. Waste management practices;

V.E.1.j. A description of all other permits required for the corrective measure(s);

V.E.1.k. A public participation plan;

V.E.1.l. A cost estimate that identifies all costs associated with the corrective measure(s) project; and

V.E.1.m. A schedule for the implementation of corrective measures.

V.E.2. Within 30 days of approval of the CMI Plan by the ~~Executive Secretary~~Director, the Permittee shall implement the corrective measure(s) according the schedule contained in the CMI Plan.

V.F. CORRECTIVE MEASURE(S) IMPLEMENTATION REPORT

V.F.1. Within 90 days of completing construction of the corrective measure(s), the Permittee shall submit a Corrective Measure Implementation Report to the ~~Executive Secretary~~Director for approval. The report shall certify that the project was built according to the design plans and specifications, and that the corrective measure(s) are performing adequately. The report shall also include, at a minimum, the following:

V.F.1.a. A summary on the construction of the corrective measure(s), including any deviation or modification to the design plans and specifications;

V.F.1.b. Construction quality assurance documentation;

V.F.1.c. As-built drawings or photographs, and;

V.F.1.d. A certification by an independent, Utah registered professional engineer qualified by

experience and education in the appropriate engineering field that the corrective measure(s) were implemented in accordance with the CMI Plan.

V.G. OPERATION AND ASSESSMENT OF THE GROUNDWATER CORRECTIVE MEASURE(S)

V.G.1. The Permittee shall conduct corrective measure(s) as described in the approved CMI Plan.

V.G.2. The Permittee shall provide an annual report to the ~~Executive Secretary~~Director on the operation, ~~maintenance~~maintenance, and effectiveness of the groundwater corrective measure(s) program. This report shall be submitted on or before March 31st of each calendar year.

V.G.3. If the Permittee determines that the Operation and Maintenance Plan needs to be modified to meet the Corrective Measure(s) Completion Criteria, the Permittee shall submit a request to modify the Operation and Maintenance Plan to the ~~Executive Secretary~~Director within 90 days of determining that the modification is necessary.

V.G.4. If the ~~Executive Secretary~~Director determines that the Corrective Measure(s) Completion Criteria are not being attained, the ~~Executive Secretary~~Director will notify the Permittee that the groundwater corrective action program in not being effective and needs to be modified. The Permittee shall within 90 days of receiving the ~~Executive Secretary~~Director's notification to modify the groundwater corrective action program so that the cleanup goals can be met. The modification, if necessary, shall include additional corrective measure(s) designed to achieve the cleanup or modification(s) to the operation and maintenance of the existing corrective measure(s).

V.G.5. Whenever the Permittee discovers that the corrective measure(s) are not operating as intended, he shall take immediate action to correct the problem and notify the ~~Executive Secretary~~Director within seven days.

V.G.6. If the Permittee discovers that operating the corrective measure(s) is adversely affecting the quality of the groundwater down-gradient, he shall notify the ~~Executive Secretary~~Director within 24 hours and take immediate action to mitigate the deterioration of the State of Utah's groundwater resource.

V.G.7. Any modification to the Operation and Maintenance Plan, the Corrective Measures Completion Criteria or any other component of the corrective measures program shall be done in accordance with Condition I.D.

V.H. DURATION OF GROUNDWATER CORRECTIVE ACTION PROGRAM

V.H.1. When the Permittee believes that the Corrective Measure(s) Completion Criteria have been attained, the Permittee shall prepare a Corrective Measure(s) Completion Report. The purpose of the Corrective Measure(s) Completion Report is to document how the Corrective Measure(s) Completion Criteria have been met and to justify why the corrective measure(s) and/or groundwater monitoring program for the groundwater contamination may cease.

V.H.2. The Permittee shall continue the corrective measure(s) and groundwater monitoring until the Permittee receives written notification from the ~~Executive Secretary~~Director approving the

request to cease corrective measure(s) and/or groundwater monitoring as proposed in the Corrective Measure(s) Completion Report. The response for this request shall not be unreasonably withheld.

V.I. FINANCIAL ASSURANCE FOR THE GROUNDWATER CORRECTIVE ACTION

V.I.1. The Permittee shall be financially responsible for the development and implementation of the groundwater corrective action program in accordance with UAC R315-8-6.12(b).

2.0 FACILITY DESCRIPTION

The ATK-Bacchus facility is located on the west side of the Salt Lake valley in West Valley City, Utah and unincorporated Salt Lake County. The facility includes over 400 buildings that are used to produce and prepare propellant ingredients, manufacture solid propellants and produce solid propellant rocket motors.

2.1.1 General Description of the ATK-Bacchus Facility

The ATK-Bacchus facility includes the following subparts: Plant 1 (or Bacchus East); the Naval Industrial Reserve Ordnance Plant (NIROP); Bacchus West; and a number of off-site groundwater sampling wells. In order to provide a complete description of the processes that generate hazardous waste at ATK-Bacchus, the treatment and storage facilities located on NIROP will be described in this application along with the other Bacchus facilities. However, the permit application information for facilities located on NIROP will be submitted as a separate application.

The facilities that comprise ATK-Bacchus are owned or leased, and operated by ATK Launch Systems, a wholly owned subsidiary of Alliant Techsystems. The contiguous areas covered by this application are shown on Figure 2-1. The NIROP facility is owned by the Navy and is operated by ATK Launch Systems as an integral part of the facility. Plant 1 and a portion of the Bacchus West facilities are owned by ATK. Most of the Bacchus West property is owned by and leased from the Kennecott Corporation.

The facility occupies about 10,000 acres within West Valley City, Utah and unincorporated Salt Lake County. It is located approximately four miles south of the unincorporated town of Magna and about 18 miles southwest of Salt Lake City, Utah. Transportation access includes 8400 West (Utah Hwy 111) that passes through the plant, 4100 South and 5400 South that are along the north and south plant boundaries, and a railroad spur through the plant.

Hercules, Inc. established the Bacchus Works in 1915 as a producer of commercial blasting powder. The plant was renovated into a modern solid rocket propulsion facility in 1958 with research, development, and production capability. ATK acquired the facility in March 1995 when they purchased Hercules Aerospace from the Hercules Company.

Both reactive and non-reactive hazardous wastes are generated at the facility. The wastes are accumulated and stored or treated at one of the onsite RCRA Interim Status hazardous waste management units (HWMUs). Reactive wastes can be treated onsite at the NIROP Burning Grounds. Chemical wastes may be stored on-site at one of the interim status storage areas for a time before being shipped off-site for treatment and disposal.

Non-reactive hazardous wastes are stored until shipped to appropriate off-site treatment or disposal facility. Reactive wastes and reactive contaminated materials are thermally treated at the NIROP Burning Grounds or shipped off-site to an appropriate treatment and disposal facility. A more detailed description of these HWMUs and their operations are described in Section 2.2, Description of Hazardous Waste Management Units, and in Section 4.0, Process Information.

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2.1.2 Facility Security

The facility is secured by chain link and barbed wire fencing that surrounds the active site. The perimeter fence has warning signs posted at about 500 ft intervals, at corners, and at each gate. The warning signs display the words "Danger Explosives, No Trespassing." In addition, the HWMUs have warning signs to inform employees and discourage unauthorized access.

The facility has three primary access points through the Main, Bacchus West and NIROP gates. The Main and Bacchus West gates are manned during normal business hours and the NIROP gate is manned on an as needed basis. All gates are either locked or controlled by card readers when security personnel are not present. The site is patrolled by security guards.

2.1.3 Bacchus East (Plant 1)

Plant 1 supports manufacturing, production testing, shipping, and research and development functions. Production facilities comprise the largest area and occupy the greatest number of buildings at Plant 1. The activities conducted in the production facilities include the preparation of empty rocket motor chambers, preparation and handling of propellant ingredients, mixing and curing of propellant ingredients, propellant mold assembly/disassembly, propellant machining, in-process storage, final assembly, and shipping. HWMUs located on Plant 1 are identified in Section 1.3.

Laboratory facilities at the ATK-Bacchus once involved many buildings at Plant 1 and NIROP, but most labs were relocated to the ATK-Promontory plant in 2001-2002. Laboratory activities include, but are not limited to propellant research, process development, materials development, destructive and nondestructive testing, standards measurement, and applied physics research.

The Plant 1 Static Firing Range occupies a two-acre site in the south area of the plant and includes four firing bays. These bays provide horizontal and vertical testing capability for small propellant charges. The propellant tested typically does not exceed 1000 pounds per year.

2.1.4 ~~–~~NIROP

NIROP was originally built by the Air Force for production of Minuteman Stage III rocket motors. It is located immediately north of Plant 1. When Minuteman motor production finished, the facilities were temporarily converted to the production of mini-mine explosives. This plant now supports Navy programs and other production programs permitted by the Navy. The processes conducted at NIROP are similar to those described at Plant 1, and includes activities such as propellant ingredient preparation and handling, motor curing and storage, final assembly, inspection, machining and shipment.

2.1.5 ~~–~~Bacchus West

The Bacchus West facility is adjacent to and contiguous with Plant 1, located west of 8400 West. It consists of buildings where large solid propellant rocket motors are manufactured. The processes conducted at Bacchus West are similar to those at Plant 1, but generally operate under automated control. Closed ingredient handling systems are used in all possible applications to prevent contamination of the processes, products, and environment.

2.2 DESCRIPTION OF HWMUs

HWMUs at the ATK-Bacchus include storage areas for the management of listed and characteristic hazardous waste. In addition, the ATK-Bacchus operates a number of hazardous waste accumulation areas in accordance with the generator requirements for satellite accumulation and the less than 90-day hazardous waste accumulation rules.

2.2.1 Description of Hazardous Waste Container Storage Units

ATK-Bacchus has four hazardous waste container storage units that are operated in accordance with the interim status requirement of R315-7-16 of the Utah Administrative Code (UAC). The hazardous waste container storage units identified in Section 1.3 are:

- HS-1,
- ES-1,
- Segment Storage, and
- RH-1

2.2.2 HS-1

HS-1 is used to store non-explosive solid, semi-solid, and liquid hazardous and non-hazardous wastes. This area is used to store and consolidate waste prior to off-site shipment to an authorized hazardous waste management facility. HS-1 (Figure 2-2.2) consists of buildings 8562, 8567, 8568 and four sheds located south of the main structure. HS-1 has a combined storage capacity of 15,900 gallons. The storage capacity for each of the HS-1 buildings is listed below.

Table 2-1

Building	Capacity (gallons)	Containment (gallons)
8562	1,200	165
8567	4,900	690
8568	9,350	NA
Sheds A-D	450	NA

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Indoor concrete flooring surfaces are sealed with a commercial sealant, and the concrete joints are caulked with silicone. The sealant provides for ease of cleanup and prevents leaks or spills from migrating into the concrete pad. The specification for a typical sealant used to seal concrete floors is provided as Figure 2-2.3.

Building 8562 (Figure 2-2.4) is divided by a wall into two separate rooms. The west half of the building is office space, and the east half is a work area. No hazardous wastes are stored in the office area. The entire building is equipped with heat and lighting.

The floor in the work area was constructed using a monolithic cast concrete slab with a 6" curb on the South and North walls (Figure 2-2.5). The inside dimensions of the work area are 24'x 20'. The main concern for liquid containment is to ensure that liquids will be contained, and not released through the north personnel door**.** The area adjacent the personnel door is approximately 0.12' higher than the surrounding floor area. The floor forms the secondary containment in the area west of the personnel door with a liquid collection trench forming the low point of the containment. The dimensions of the containment are approximately 12' x 24'

x 0.12'. The volume of this area can be approximated by taking half of the volume for the containment rectangle described above, or 17 ft^3. The room also has a floor trench, which is an architectural feature from the previous occupancy of the building. The average dimensions of the trench are 0.4'deep, 0.5' width and 24' long for a volume of 5 ft^3. The total volume contained in the trench and area west of the personnel door is 22 ft^3. Using 7.48 gallons per cubic foot, the containment will hold approximately 165 gallons.

Building 8567 is an enclosed structure, built on a monolithic cement pad surrounded by a minimum 6" curb on all sides (Figure 2.2-6). ~~-~~The inside dimensions of this building are 21' x 52'. The floor slopes to the north and east. Any liquids released will be contained and collected along the north and east side of the building. The average depth along the north wall is 0.30'. The average depth along the east wall is 0.25'. To conservatively determine the containment capacity the size of the containment will be estimated based on a depth of 0.25' along both the north and east wall. The width will be 21' along the north wall, 35' along the east wall and will cover approximately one-half the room using a line which bisects the room running from the northwest corner to a point approximately 35' along the east wall. The 35-foot distance along the east wall is the floor elevation where liquids could start to flow through the door into the work area of Building 8562.

The volume for this area is ½ the length x the width x the depth or ½ (.25') (21') (35') = 92 ft^3. Using 7.48 gallons per cubic foot, the containment will hold approximately 690 gallons.

There are five cabinets for small containers located in the south end of Building 8567. The cabinets are constructed of steel with dimensions of 40" x 40" x 74". Each cabinet contains a 13-gallon capacity liquid sump and is self-contained.

Building 8568 (Figure 2-2.7 and 2-2.8) is an enclosed wood-framed structure fitted with two large overhead doors. It measures 30' wide x 60' long. Storage capacity is 9,350 gallons. The concrete floor in this building has no secondary containment. It is used to store both RCRA and non-RCRA wastes. RCRA liquid wastes may be stored in Building 8568 only if the containers are stored on pallets that provide secondary-containment or packaged as lab packs containing chemically compatible absorbent material in sufficient quantity to absorb the total liquid contents.

The four wood-framed sheds each having approximate dimensions 10'4" x 10' 4" located to the south of Building 8567 (Figure 2-2.2). Actual dimensions vary slightly for each shed. The sheds are designated A, B, C and D. Shed B is used to store hazardous waste. Sheds A and ~~B~~C are used to store ~~hazardous waste. Shed C is used to store~~ supplies. Shed D is a mechanical room for the facility. ~~Combined storage~~Storage capacity for ~~sheds A and~~Shed B is 450 gallons. The sheds have a concrete floor with no secondary containment.

Shed A is used to store ~~unique wastes such as gas cylinders~~ waste packaging supplies including fiber, poly, and metal boxes, pails, and drums ranging from less than one-gallon capacity through 55-gallon drums, and containers ~~that may off-gas such as water-wet aluminum powder. Waste~~for 4-foot and 8-foot fluorescent lamp tubes. No waste materials will be stored ~~on shelves, in a cabinet or on a containment pallet~~this shed. Shed B contains cabinets for storing small containers. These cabinets are identical in design to the cabinets in Building 8562 and each contains a 13-gallon capacity liquid sump.

2.2.3 ES-1

ES-1 (Bldg 2105) is a container storage area for the accumulation and storage of reactive wastes (Figure 2-2.9). ES-1 has a storage capacity of 20,000 pounds, stored in a variety of containers. The design capacity is based on safety concerns associated with the storage of reactive materials. Figure 2.2-10 provides a floor plan for the building.

ES-1 was constructed in 1961 to store and weigh dry propellant ingredients. ES-1 is a totally enclosed structure, constructed of concrete and steel. Except for the south-facing dock area, each side is protected by a gravel and sand berm. The berm is supported along the south side by wooden beams that were constructed to direct the shock of a detonation away from neighboring facilities, equipment, and personnel.

The floor on the west side of the building is located at truck bed height~~,~~ while the floor on the east side of the building is at ground level~~ to facilitate loading and unloading operations~~. The building is protected by a deluge sprinkling system and is equipped with a grounding system to minimize electrostatic discharge (ESD) spark hazards. Fire symbols appropriate for Class 1.1 materials are posted on the exterior of the building. A fire hydrant is located within 150 ft of the building.

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2.2.4 Segment Storage

Segment Storage was designed for the storage of Class 1.3 rocket motor segments, but it can also be used to store Class 1.3 containers. Containers will be stored inside a trailer. Segment Storage has a storage capacity of 75,000 pounds of Class 1.3 material. No Class 1.1 materials will be stored on this pad. The pad is located southeast of HS-1 on Plant 1. It consists of a 75' x 100' asphalt pad (Figure 2-2.11), accessible by paved roads from the north and south. The facility protected from lightning in a "tent" configuration (grounded telephone poles at each corner of the pad connected with a conductive wire). Although no building or structure is present on the pad, plant maps designate the area as Building 4643. Fire symbols appropriate for Class 1.3 materials are visibly posted. A fire hydrant is located within 1,000 feet of the area.

Segment Storage was designed for the storage of Class 1.3 rocket motor segments, but it can also be used to store Class 1.3 containers. Rocket motors will be stored on shipping trailers or storage chocks. Containers will be stored inside enclosed locked trailers. Segment Storage has a storage capacity of 75,000 pounds of Class 1.3 material. No Class 1.1 materials will be stored on this pad. The pad is located southeast of HS-1 on Plant 1. It consists of a 75' x 100' asphalt pad (Figure 2-2.11), accessible by paved roads from the north and south. The facility is protected from lightning by a "tent" configuration (grounded telephone poles at each corner of the pad connected with a conductive wire). Although no building or structure is present on the pad, Plant 1 maps designate the pad as Building 4643. Fire hazard symbols appropriate for Class 1.3 explosives materials are visibly posted at the entrances to the pad. A fire hydrant is located within 1,000 feet of the area.

2.2.5 RH-1

RH-1 is a wood-framed, earthen-covered structure (Figure 2-2.12). Floor dimensions are 37' x 90' (Figure 2-2.13). The front of the building has two large double doors (11'6" x 12' high) to allow access for rocket motors. A set of rails enters the building through the double doors enabling rocket motors to be brought in on rail dollys.

The building is designed to safely store bulk explosives and rocket motors (Figure 2-2.14). Hazardous waste and production rocket motors may be stored at RH-1. Hazardous waste stored in RH-1 will be clearly labeled and segregated from stored production rocket motors. RH-1 has a total storage capacity of 250,000 pounds, of which only 150,000 pounds can be used for hazardous waste storage. Fire symbols appropriate for Class 1.1 materials are posted on the exterior of the building. A fire hydrant is located within 150 ft of the building.

2.3 QUANTITY DISTANCE DETERMINATION

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The facility uses the Department of Defense (DOD) guidance to calculate quantity distance relationships. Guidance is contained in DOD 4145.26-M," DOD Contractor's Safety Manual for Ammunition and Explosives," September 1997, Under Secretary of Defense for Acquisition and Technology. DOD 4145 is derived from DOD 6055.9-STD," DOD Ammunition and Explosives Safety Standards," October 1992. The method used to determine safe quantity distance relationships for both Class 1.1 and 1.3 propellants is provided below.

The quantity distance relationship for Class 1.3 propellant is determined by the following formula: $\mathbf{D=5W^{1/3}}$. Where W is the weight of Class 1.3 propellant and D is the safe distance. The formula applies to Class 1.3 propellant and Class 1.3 propellant ingredients. The safe distance is defined as the interline protection for mass fire for Class 1.3 propellant.

The quantity distance relationship for Class 1.1 propellant is determined by the following formula: $\mathbf{D = 18W^{1/3}}$. Where W is the weight of a Class 1.1 explosive and D is the safe distance. The formula applies to Class 1.1 propellant and Class 1.1 propellant ingredients. The safe distance is defined as the unbarricaded interline protection for Class 1.1 propellant. Refer to Figure 2-3.15 for safe distances for the hazardous waste storage facilities and significant 90-day accumulation areas identified in this application.

~~37 ft~~

The quantity distance relationship for ES-1and RH-1 is based on the more conservative requirement for a Class 1.1 explosive.

2.4 90-DAY ACCUMULATION UNITS

The facility maintains 90-day storage areas. These 90-day areas include waste accumulation stations and one wastewater collection tank at operating buildings.

2.4.1 Wastewater Collection Tanks

Wastewater collection tanks are used to collect process and building wash water. There are approximately 40 tanks located at individual buildings at the facility. The majority of the wastewater collected at the facility can be discharged either directly to the municipal sewer or discharged to the sewer after being processed at the on-site Waste Water Treatment Plant (WWTP). Piping for most of the tanks is above ground; underground piping is double-walled. Cloth filters are used, where applicable, to prevent propellant or explosives particulates from

entering the tank. Filters contaminated with explosives are thermally treated at the Burning Grounds. All tanks have level indicators, and use either secondary containment leak detection or visual confirmation where leaks can be visually identified. Wastewater generated at Bacchus West is currently not included in the discharge permit from the Magna sewer. It is either held in tanks for off-site disposal, or discharged to the Kearns Improvement District.

The hazardous waste tank identified in Table 2.2, is a double-wall steel tank with cathodic protection, leak detection equipment and high-level alarms.

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Table 2.2			
90-Day Hazardous Wastewater Storage Tanks			
No.	Building	Tank Type	Capacity
2440	Carbon/Carbon	Double-wall steel	6000 gal

2.4.2. Accumulation Stations

Waste accumulation stations support most waste-producing operating buildings at the facility. Waste handling processes are discussed in more detail in Section 4. The number of accumulation stations varies according to need. Accumulation stations at explosive generating operations are referred to as "slum sheds". Slum sheds are three-sided wooden structures, typically 6' x 17' x 8' high (Figure 2-4.16). They are built on a concrete pad open to the north to protect explosive wastes from southern sun exposure. A similar structure is used at nearly every accumulation station but the design is not necessarily standardized.

2.5 LOCATION INFORMATION

The following sections contain information relating to the surface topography of the facility, consideration for potential seismic activity, floodplain location, and on-site traffic control.

2.5.1 Topographic Map Information

A topographic map is presented showing the various ATK-Bacchus facilities: Plant 1, NIROP, and Bacchus West in Figure 2-5.17. The map shows plant facilities, security fences and gates, and the hazardous waste management facilities. The topographic map includes:

- Surface contours
- Surface water flow and drainage barriers

2.5.2 Surface Run-on/Run-off

Highly fractured limestone and quartzite, and permeable alluvial deposits near the mountain front, allow most of the run-off originating in the Oquirrh Mountains to infiltrate into the subsurface before it reaches the facility. Therefore, run-off from the Oquirrh Mountains to the valley floor is limited. Stream flow from the Oquirrh's is intermittent and occurs primarily during the spring and summer run-off months from snowmelt and precipitation.

Streams that flow across the facility originate in the Oquirrh Mountains to the west. The main streams that contribute surface water on the facility are Coon Creek and an unnamed stream in Harkers Canyon. These streams converge immediately upstream of the facility. The stream is known as Coon Creek below the confluence. The Coon Creek drainage enters the Plant 1 facility

via a culvert under State Highway 111, and proceeds northerly to a Salt Lake County flood control detention basin, near 4100 South.

Except for Coon Creek, no major drainages cross the facility. Run-off from most areas on the site occurs as overland flow that collects in small northeast trending channels that follow the local topography.

2.5.3 Floodplain Boundary

Between 1983 and 1986, the region surrounding the facility experienced a cycle of above-normal precipitation. The increased run-off accelerated erosion of Coon Creek and other minor channels. The channel surface for Coon Creek degraded to levels that in a few locations are now several feet below the previous channel surface. The most current map published by the Federal Emergency Management Agency (FEMA) showing the 100-year floodplain boundary, dated September 21, 2001 (Figure 2-5.18), does not indicate a change in the delineation of the floodplain boundary. An independent engineer has reviewed the floodplain boundary (reference: R.B. White, letter to R.A. Bowlin, "Review of Floodplain Information in Bacchus Part B Permit Application," February 13, 2006). A visual inspection of the Coon Creek channel also does not indicate any apparent erosional floodplain concerns.

2.5.4 Wind Direction

The wind rose (Figure 2-5.19) for the Salt Lake area shows the frequency of winds, in percent by direction and speed, and indicates the average wind speed in miles per hour. The predominant wind direction is from the south with an average wind speed between 8.9 and 11.3 mph. The next most prominent wind direction is from the north with an average wind speed of 7.9 to 8.8 mph.

2.5.5 Miscellaneous Facilities

A production well and water storage tank are located in the foothills above (approximately 1-mile west) the Bacchus West production facilities. This withdraw well is currently not in use, but could be brought into service if required. This system was designed to supply pressurized potable water to the facilities and for fire protection (deluge) systems and hydrants throughout the entire plant. This system is accessed by a system of internal roads that connect the buildings and facilities at the ATK-Bacchus facility. Fire control water is supplied through underground water lines.

The facility sanitary sewage system consists of sewage collection and septic systems, specific to areas in the plant. A domestic sewage collection system connects the Plant 1 and NIROP buildings and a few production buildings to the Magna sewer. Individual septic tank and drain field systems serve the majority of buildings in the NIROP, Plant 1, and Bacchus West operating areas.

2.5.6 Seismic Considerations

The location and potential affect an earthquake within the local Intermountain Seismic Belt (ISB), more specifically the Wasatch Front, could have on the facility has been evaluated. The general consensus is that a Magnitude 6.5 or greater earthquake may occur along the Salt Lake Valley segment of the Wasatch Fault at any time.

2.5.7 Location

The facility is located within the Salt Lake Valley at the eastern edge of the Basin and Range Physiographic Province. More specifically, the site is located within the Magna Block, just east of the Oquirrh Mountains (Tooker, E.W. and Roberts, Ralph J., 1961). In Utah, the ISB coincides with the boundary between the Basin and Range to the west and the Colorado Plateau to the east. The Basin and Range is characterized by north-south trending normal faults, caused by spreading from lateral tension and local uplift. In addition to deep-seated basement faulting, the spreading of the valleys also causes sympathetic and antithetic faulting in the sediments overlying the basement structures.

The Magna Block and northern Oquirrh stratigraphy are part of the upthrust portion of the North Oquirrh Thrust Fault. The Oquirrh Mountains are a tilted fault block associated with the eastern portion of the Basin and Range. Faulting associated with Basin and Range along the local uplifted mountain ranges, i.e. Wasatch, Oquirrh, and Stansbury, occurs only on the western side of the ranges (Utah Geological Survey, 2003, Map 193DM). There are no documented faults on the east side of the Oquirrh Mountains associated with Basin and Range or other Tertiary and early Quaternary tectonic activity (Tooker and Roberts, 1961).

The only documented sympathetic and antithetic faulting in the Salt Lake Valley near the facility is the West Valley Fault Zone (Figure 2-5.20 and 2-5.21). The faults in this zone primarily dip toward the east in antithetic response to weakness in the valley sediments caused by movement along the Salt Lake City section of the Wasatch Fault Line. No documentation is present to suggest that the West Valley Fault Zone is tectonic in nature (basement controlled).

2.5.8 Geologic Control

Tooker and Roberts produced the “Geologic Map of the Magna Quadrangle, Salt Lake County, Utah (1971)”. The map shows a northeast trending normal fault, downthrown to the east, which passes within 0.4 miles of the NIROP Burning Ground. This fault is associated with pre-uplift of the Oquirrh’s and is extended to the northeast based on a small outcrop of the Kessler Canyon Formation just east of Magna. There is no evidence that this fault has ever been active during formation of the Basin and Range. However, the “Interim Geologic Map of the Magna Quadrangle”, Open File 424, UGS, August 2004, does not show this fault to be present. The strike and dip of this outcrop appears to be more associated with outcrops north and south of the Pleasant Green Cemetery in Magna.

One of the primary linear surface features is Coon Creek. An earlier impression was that the location of Coon Creek might have been fault controlled; however, current review of the data does not confirm this. None of the published geologic maps indicates a fault, structural or near surface in the area of Coon Creek that would ~~effect~~affect the direction of drainage. Coon Creek appears to be controlled more by folding as it exits the Oquirrh’s, than by simply following the path of preferred erosion. The upper portion of Coon Creek is in a structural synclinal trough that is

perpendicular to faulting throughout most of its course. The redirection from east-northeast to a northerly trend on Plant 1 is not believed to be fault controlled. The majority of the faults shown in the Tooker/Roberts map, are associated with the Oquirrh Mountains, and are compressional or shear features of pre-Tertiary age. Only a few of the faults appear to be extensional and associated with horst and graben release. Stratigraphic information collected by ATK-Bacchus suggests that Coon Creek has maintained its approximate line prior to and following the presence of Lake Bonneville.

Borings at the site and north of 4100 South have occasionally encountered Tertiary sediments of volcanic origin. About 8000 feet north of the site, the borings for GW-79, 80, 81, and 82 encountered a Tertiary volcanic material. It was initially thought that this change in depth of the upper contact was related to faulting. However, this would mean that a total vertical fault displacement of more than 150 feet, more than any known Holocene fault in the valley, had occurred. The volcanic material appears to be at least 60 feet thick, based on borings. None of the borings has penetrated the unit to confirm displacement of the bottom contact.

Borings along the northern boundary of the site seem to indicate a similar subsurface condition. Although borings for GW-53 and GW-54 did not encounter the volcanic unit near the termination depth, the boring logs document that volcanic material and cobbles are present at a depth similar to where they appear in the boring logs of GW-79, 81, and 82. No volcanic debris was identified in the next boring to the west (GW-52), which was terminated at a depth approximately 60 feet greater than GW-53 and 54. It is believed that the streams eventually cut through the volcanic layer and into the Tertiary sediments below. Later with the formation of Lake Bonneville, sediments covered the volcanic material to the present surface, allowing the current upper and lower water bearing zones to be in hydraulic communication.

A current review of the data concluded that this is not a fault-induced graben, but simply an erosional feature. The volcanic layer appears to have been deposited as a flow from somewhere in the southern Oquirrh's during mid-Tertiary time. A trough appears to have been cut by erosion from stream running out of the Coon and Harkers canyons which followed the topography northward, bound on the west by the uplifted Oquirrh's, near the location of present day Coon Creek.

2.5.9 Local Faulting

Various faults and linears are documented or inferred to be present near the facility. Some of the more pertinent ones are discussed below.

The Granger fault, as named by Marine and Price (1964) and evaluated by Keaton and others (1987), is the nearest Holocene age fault with possible recent displacement. It is located about five miles east-northeast of the site. The Granger and Taylorsville faults to the east comprise the West Valley Fault Zone (Figure 2-5.20).

Slentz (1955) refers to a suspected east-trending fault passing south of the old gravel pits. The evidence used to infer the existence of such a fault consisted of steep dips in rocks of the Salt Lake Group as exposed in the gravel pits, warm water from rising groundwater in the bottom of the gravel pits, and the east-trending landform on which the Provo Level Shoreline of the ancient Lake Bonneville has been eroded.

Cook and Berg (1961) found a northeast-trending, southeast-facing gravity anomaly they interpreted to represent a fault close to the Oquirrh Mountains south of the site and swinging northeastward through the site. They used Slentz's evidence to support their interpretation of the gravity anomaly. There is no surface expression or documentation to verify the existence of this fault.

Examination of stereoscopic aerial photographs dating from 1946 to 1965 revealed that Lake Bonneville shoreline features across the site were continuous and showed no evidence of disturbance by fault offset. Since the shoreline features at the site are greater than 10,000 years old, absence of fault offset clearly indicates the absence of Holocene faults within the 3,000 ft radius. Observations of the distribution of bedrock exposures in the area made during site reconnaissance supports the interpretation of the aerial photographs and further indicates that the presence of a possible east-trending fault south of the old gravel pits, as inferred by Slentz (1955), certainly does not affect Lake Bonneville deposits and probably does not exist. Figure 2-5.22 presents geologic features identified at ATK-Bacchus during field reconnaissance.

A geologic map of the site area included in Sterns (1984) shows five faults relatively close to the ATK-Bacchus site. The largest of these faults has been named the Principal Marginal Fault. The other four faults that have not been named are shown to pass through or within 3,000 ft of the site. The geologic cross-section included in Sterns (1984) shows the upper surface of the Salt Lake Group and the lower part of the Lake Bonneville deposits to be faulted. Such an interpretation would indicate that the most recent movement of the faults was younger than late Pleistocene, and possibly Holocene.

2.5.10 Seismic Activity

Seismic activity has been documented in 1962 and later years, clustered north of ATK-Bacchus in the Magna area. Based on an evaluation of published geologic data supplemented by examination of stereoscopic aerial photographs and field reconnaissance, no faults that have had displacement in Holocene time (<10,000 years before present [b.p.]) are present within 3,000 ft of any hazardous waste management facilities at the facility. Furthermore, published geologic studies pertaining to the site area do not indicate the presence of Holocene faults within five miles of the site. A major earthquake of > 6.5M could still possibly generate ground shaking and potential liquefaction at the facility.

Ground shaking caused by the vibrations of passing seismic waves. The intensity is ~~dependant~~dependent on the location and magnitude of the earthquake and the geologic conditions of the site. The most recent publication on ground shaking in the Salt Lake Valley area is "Earthquake Scenario & Probabilistic Ground Shaking Maps for the Salt Lake City, Utah, Metropolitan Area", Utah Geological Survey, Miscellaneous Publication 02-5, 2002 (MP 02-5).

The MP 02-5 report presents hazard maps that show the frequency-dependent amplification of unconsolidated sediments in the Salt Lake Valley. In summary, locations along the bench areas near the Wasatch Fault will exhibit the highest peak accelerations, while the central portion of the valley will show lower peak accelerations due to damping. The site is situated on, what is termed in the report as, lacustrine alluvial gravels (Figure 2-5.23). This material, along with a shallowing of the sediments near the Oquirrh Mountains would cause an increase in ground shaking. The study estimates the peak horizontal ground acceleration (PGA) in the site area to be between 0.5g and 0.6g (Figure 2-5.24). This level of PGA is considered moderate to heavy, with slight damage to specially designed structures and considerable damage to ordinary buildings.

Long-term explosive storage building ES-1 is a large timber, wood framed structure. This building is surrounded and supported on three sides by earthen bunkers. The HS-1 buildings are wood-framed structures. RH-1 is a wood-framed quonset building. Evaluation by our facility engineering department indicates that because of the size, light ground loading, building construction, and where present, the support of earthen bunkers, these buildings should ~~fair~~fare well should ground shaking from a Wasatch Fault earthquake occur.

Liquefaction occurs when water-saturated sandy soils are subjected to ground shaking and loss of bearing strength during an earthquake, generally of at least a magnitude of 5.0. The likelihood of liquefaction caused damage is greatest where the groundwater is shallow. Damage can be either subsidence in nature or induced ground/slope failure (landslides). The most recent publication on liquefaction in the Salt Lake Valley area is "Geologic Evaluation and Hazard Potential of Liquefaction-Induced Landslides along the Wasatch Front, Utah", Utah Geological Survey, Special Study 104 (SS104). Liquefaction is not generally a life-threatening hazard. However, failures initiated by liquefaction can present a hazard to life as well as property. Thirteen liquefaction-induced landslides have been identified along the Wasatch Front (SS104). There are no published reports on subsidence or landslides along the eastern slopes of the Oquirrh Mountains.

Liquefaction generally occurs in areas of shallow groundwater (generally less than 30 ft deep) and loose sandy soils. Earthquake-induced liquefaction may cause four principal ground-failure types: 1) loss of bearing strength on relatively flat ground, 2) ground oscillation where the ground slope is less than 0.1 percent, 3) later-spread landslides where slopes range between 0.1 and 5.0 percent, and 4) flow failures where slopes exceed 5.0 percent (SS104). Only the first two failure types could possibly occur at the facility.

Groundwater depth across the facility varies. The groundwater level is about 140 ft below ground surface (bgs) for explosive storage buildings while the groundwater level is about 40 ft bgs at HS-1. The depth to groundwater is deep enough to mitigate potential vertical sand blows and lateral spreads that could cause settlement of the ground surface due to liquefaction. Therefore, liquefaction should not pose any serious risk to the waste storage units at the facility.

2.5.11 Floodplain Considerations

A copy of the portion of the FEMA Flood Insurance Rate Map for the area of the facility that includes HS-1, ES-1, ES-2, and the NIROP Burning Grounds is presented in Figure 2-5.18. None of the hazardous waste management areas on Plant 1 are located within or immediately adjacent to a 100-year floodplain (Zone A designation).

2.6 ACCESS CONTROL AND TRAFFIC

ATK-Bacchus can be accessed from 8400 West (Utah Highway 111) that passes through the plant and from 4100 South and 5400 South that are along the north and south plant boundaries. A railroad spur used by both ATK-Bacchus and Kennecott also accesses the plant.

ATK-Bacchus is secured by chain link and barbed wire fencing that surrounds the site. The perimeter fence has warning signs posted at about 500 ft intervals, at corners, and at each gate. The warning signs display the words "Danger Explosives, No Trespassing." In addition, the operating HWMUs have warning signs to inform employees and discourage unauthorized access.

ATK-Bacchus has three primary access points - the Main, Bacchus West and NIROP gates. The Main and Bacchus West gates are manned during normal business hours, and the NIROP gate is manned on an as needed basis. All gates are locked or controlled by magnetic card readers when security personnel are not present. The site is also patrolled by security guards on a 24-hour basis.

Roads to the operating HWMUs are surfaced with asphalt or compacted road base. Minimum design loading criteria is based on 8,000 pounds per wheel (16,000 pounds per single axle and 32,000 pounds per tandem axle). Each operating HWMU has parking and maneuvering space to facilitate the unloading and loading of wastes.

2.7 SAFETY RESTRICTIONS

No unusual traffic patterns exist. Main, secondary, and other roads are controlled by stop signs. Speed limits are posted throughout the facility. Facility personnel operating motor vehicles must possess a valid Utah State driver's license. Forklift operators must pass additional classroom and operating exams for each individual forklift they are assigned to operate. Disciplinary action may be taken for any traffic violation.

3.0 WASTE ANALYSIS PLAN

3.1 INTRODUCTION

This Waste Analysis Plan (WAP) was prepared to support the Part B permit application for the Plant 1 portion of the ATK-Bacchus facility. The plan is intended to provide guidance and assistance in sampling and testing of the two general categories of hazardous waste at ATK-Bacchus. These two groups include "reactive waste," ~~;~~ and "chemical waste." ~~.~~ The term "reactive waste" consists of propellant and explosive waste, as defined in R315-2-9(f)(i), (ii), (iii), (vi), (vii) and (viii). The term "chemical waste" is the term used to describe all non-reactive hazardous waste, or unknown potential hazardous waste. This category could include drummed waste, lab packs, bulk wastes, waste from offsite ATK facilities, etc. The plan outlines a process for making a hazardous waste determination for both of these general waste categories. This plan will be on file with the Environmental Services group.

The WAP was developed to ensure that all reactive waste will be properly characterized prior to being stored and/or treated. The WAP also outlines how chemical wastes that are being stored prior to shipment to an offsite disposal facility will be characterized. Information on these waste chemicals is obtained from process knowledge, MSDSs, and chemical analysis.

3.1.1 Site History

ATK-Bacchus has been manufacturing explosives at this site for approximately 100 years. The facility started as a dynamite manufacturing plant, and later began building rocket motors and other related products. Refer to Section 2 paragraph 2.1.1 in this application for a complete site description.

3.2 WASTE ACCEPTANCE PROTOCOL

3.2.1 Acceptance of On-Site Reactive Waste for Storage and Treatment

All reactive wastes must be characterized before they can be accepted for storage prior to treatment. The characterization will identify the type of reactive waste as defined in Section 3.1 and determine whether the waste exhibits any additional hazardous waste characteristics and if it is listed in accordance with R315-2-9 and 10 UAC. ATK-Bacchus shall gather and maintain waste characterization information using, at a minimum, the following sources of reference information:

- Propellant name and formulation
- Propellant ingredient chemical information
- MSDS
- Generator process knowledge
- DOT Emergency Response Guide
- DOT hazard classification and supporting test data
- Chemical Propulsion Information Agency Manual

This information is used to categorize reactive materials into profiles. Internal profiles are necessary for accumulation and storage of explosive waste prior to treatment at the NIROP Burning Grounds. Profile information is conveyed to generators to assure explosive waste is properly prepared for treatment. Explosive waste is not accepted unless it meets profile requirements identified in Section 4.8.

The DOT has strict requirements for transportation of explosives as specified in 49 CFR 172.101 Hazardous Materials Table~~.~~. Information used to obtain a DOT shipping classification for ATK-Bacchus explosive wastes is the basis of profiles with offsite TSDFs.

Any new propellants or other reactive wastes will be characterized using the above referenced materials before they are accepted for storage prior to treatment. ~~-~~Any waste that does not fit an existing profile~~,~~ must be re~~-~~profiled before the waste can be accepted. In the event that a reactive waste cannot be properly characterized with existing information, additional information will be obtained, which may include laboratory analysis.

Laboratory wastes can be characterized using generator knowledge. Upon receipt of the reactive waste at permitted storage facilities, all containers are inspected to verify proper labeling, and packaging. The total quantity and type of propellant is then recorded as described in Section 4.3.1.

3.2.2 Acceptance of Hazardous Chemical Waste for Storage and Offsite Disposal

Hazardous chemical waste generated at the facility, and other ATK facilities are accepted for storage at HS-1. Upon receipt of all hazardous waste at HS-1, all containers are visually inspected to verify proper labeling, packaging and paper work. Upon acceptance the waste is entered into the chemical waste tracking system using the container number as the unique identifier.

All wastes received from an ~~off site~~off-site source have been characterized in advance, and are assigned a container number at the time of delivery. These shipments are visually inspected to verify that the type and quantity of the waste matches the profile and manifest. The manifest numbers for off-site generated hazardous waste are entered into the chemical waste tracking system upon acceptance. Waste generated onsite may be characterized after delivery to the permitted storage area following the protocol identifies in Section 4.6.

Whenever a waste is ~~accepted~~accepted, all of the pertinent information on the waste is entered into the operating record. This information shall, at a minimum, includes the waste profile description, EPA codes, quantity, date of generation, date received, storage location and date it was shipped off site for disposal,. The chemical waste tracking system will also include the manifest number(s) for all hazardous waste received from an ~~off site~~off-site source and all off-site shipments of hazardous waste to a TSDF. At a minimum, the following resources are used to help characterize chemical waste:

- R315-2 of the UAC
- Generator process knowledge
- MSDS
- Laboratory analysis
- National Institute for Occupational Safety and Health: Pocket Guide to Chemical Hazards

3.2.3 Acceptance of Off-site Generated Reactive Waste

ATK-Bacchus periodically receives reactive waste from off-site locations. This waste is accepted by ATK-Bacchus for storage prior to being shipped off-site for treatment and/or disposal at an approved TSDF. All off-site generated wastes must be approved in advance according to the criteria in Section 4.8. Before the waste is accepted, ATK-Bacchus reviews the shipping papers and visually inspects the container(s) to confirm that container(s) and shipping papers agree and that the waste description meets the previously approved waste. Discrepancies will be resolved

with the generator before the waste is accepted. After the waste has been visually inspected and accepted by ~~ATK-Bacchus~~ATK-Bacchus, it will be entered into the explosive waste tracking system described in Section 4.3 and managed at one of the explosive waste storage sites described in Section 2.2.

3.3 TESTING CRITERIA

3.3.1 Parameters and Rationale for Testing Reactive Wastes

Reactive waste may carry several waste codes, but will always carry a D003 waste code for reactivity and such wastes are generally classified as explosives. Due to the inherent hazardous nature of reactive wastes, this material is not routinely sampled or analyzed as part of this WAP. In addition to classifying and characterizing the reactive waste managed at the ATK-Bacchus facility in accordance with R315-2 of the UAC, ATK-Bacchus will assess emission hazards associated with the open burning of these hazardous wastes as required in 40 CFR 264.601 Environmental Performance Standards. Figure 3-2 the Reactive Waste Treatment and Disposal Decision Matrix, diagrams the steps and decisions that are addressed whenever reactive waster are treated and subsequently disposed.

3.3.2 Parameters and Rationale for Testing Chemical Waste

ATK-Bacchus generates two general categories of solid waste that can be defined as hazardous in accordance with R315-2 of the UAC: 1) off-specification commercial chemical products, and 2) spent materials. Figure 3-3 the Chemical Waste Characterization and Disposal Decision Matrix, identifies how ATK-Bacchus will decide whether a waste is hazardous as defined by R315-2 of the UAC.

Off-specification commercial chemical products are chemicals that have not been altered from their original manufactured formulation but are discarded for some reason. The most common reason for discarding these chemicals is because they are no longer needed or the shelf life has been exceeded, generator knowledge can be used to characterize these wastes. Detailed information on commercial chemical products is available on the MSDSs.

A spent material is any material that has been used and ~~as a result~~because of contamination can no longer serve the purpose for which it was produced without being processed or reclaimed. ATK-Bacchus has process knowledge for all of its spent material waste streams. Annual evaluation will be performed to verify chemical composition and concentration ranges. All new or modified spent material waste streams will be initially assessed at the point of generation and annually thereafter to maintain proper characterization of all waste streams.

3.4 TEST METHODS AND SAMPLING

3.4.1 Test Method [40 CFR 264.13(b)(2)]

ATK-Bacchus will make a hazardous waste determination for all waste streams generated, ~~stored~~stored, or treated onsite. This waste stream evaluation will be made utilizing process knowledge and/or analytical testing. All analytical testing will be completed at a Utah certified laboratory. Only EPA approved test methods, selected from the most current version of SW-846 list ("Test Methods for Evaluating Solid Waste, Physical and Chemical Methods"), will be used. Test method selection will be made, based on the most applicable method as described in Chapter Two of the SW-846 publication. New test methods will be used only after they have been approved by the EPA. The laboratory will certify new methods during the annual certification process. Specific methods, which may be used to characterize wastes, are listed in Figure 3-4.

3.4.2 Sampling Methods [40 CFR 264.13(b)(3), 261 Appendix I and UAC R315-8-2.4]

Waste sampled at the ATK-Bacchus facility consists of new waste, unknown waste, waste from changed processes, and waste sampled for annual re-verification analysis. Representative samples will be collected and handled in accordance with the procedures and protocols identified in Table 3-1. At a minimum, the following safety precautions are used when sampling waste materials:

- Chemical resistant gloves and safety glasses will be used while sampling all waste. Based on the chemical hazards and splash potential, protective clothing and a splash shield or respirator may also be utilized.
- Non-sparking tools will be used to sample any waste that presents a fire hazard.
- All necessary equipment and materials will be available prior to sampling

Table 3-1

	Container/Containment Type					
Waste Matrix	**Drums, Totes**	**Boxes, Bags, Sacks**	**Storage Tanks**	**Ponds, Lagoons, Pits**	**Tankers**	**Roll-Off Bins**
Free Flowing Liquids/Slurries	Coliwasa	N/A	Pump/Dipper	Dipper	Dipper	N/A
Sludges	Trier/Spoon	N/A	N/A	N/A	N/A	Trier/Bucket/Shovel
Moist Powder/Granules	Trier/Spoon	Trier/Spoon	N/A	N/A	N/A	Trier/Shovel
Dry Powder/Granules	Thief/Spoon	Thief/Spoon	N/A	N/A	N/A	Thief/Shovel
Sand/Packed Powder	Auger/Spoon	Auger/Spoon	N/A	N/A	N/A	Auger/Shovel
Large Grained Solids	Large Trier/Spoon	Large Trier/Spoon	N/A	N/A	N/A	Large Trier/Shovel
Debris (i.e. Rags, Gloves, Towels, etc.)	Rag[1]	Rag[1]	N/A	N/A	N/A	Rag[1]

[1] The rag technique is used for sampling solid material such as rags, gloves and paper towels. After a container has been selected, it is opened and a representative sample collected and placed in the sample container. One or more of the varied materials (e.g. gloves, tongue depressors, rags, paper, plastic, etc.) is sampled depending on the mix of the container.

A variety of sampling equipment and materials will be used to collect waste samples. All reusable equipment will be washed with a detergent solution and thoroughly rinsed before re-use. Disposable equipment may also be used. This equipment and specified sampling methods are described in the SW-846 publication.

Drummed consolidation waste will be randomly sampled each year as outlined in the table below. "Average Monthly Drum Number" will be based on the previous calendar years average monthly drum inventory, for each waste stream. Samples will be ~~obtained~~ collected annually~~.~~. ~~in the first quarter of each calendar year.~~

Table 3.1	
Average Monthly Drum Number	Aliquots Selected
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5
126 to 216	6
217 to 343	7
344 to 512	8

The above table is based on a table found in ASTM D 140-70, "Standard Methods of Sampling Bituminous Materials," ASTM D 140-70.

All sample containers used during a sampling event will be new, and certified clean from a reliable source. Container selection will be based on the chemical/container compatibility, physical state and sample volume. A label will be attached to each sample ~~container which~~container that will include the following minimum information:

- Sample number
- Samplers name
- Date
- Time
- Location

In addition to the information included on the label, the chain of custody, which accompanies all waste characterization samples, will also include the following:

- Composite or grab sample
- Number of containers
- Remarks section
- Relinquishment signature block

All samples will be preserved as specified in SW-846 while in storage at ATK-Bacchus and while in transit to the testing laboratory.

3.5 FREQUENCY OF ANALYSIS

3.5.1 Frequency of Analysis for Reactive Waste [40 CFR 264.13(b)(4) and UAC R315-8-2.4]

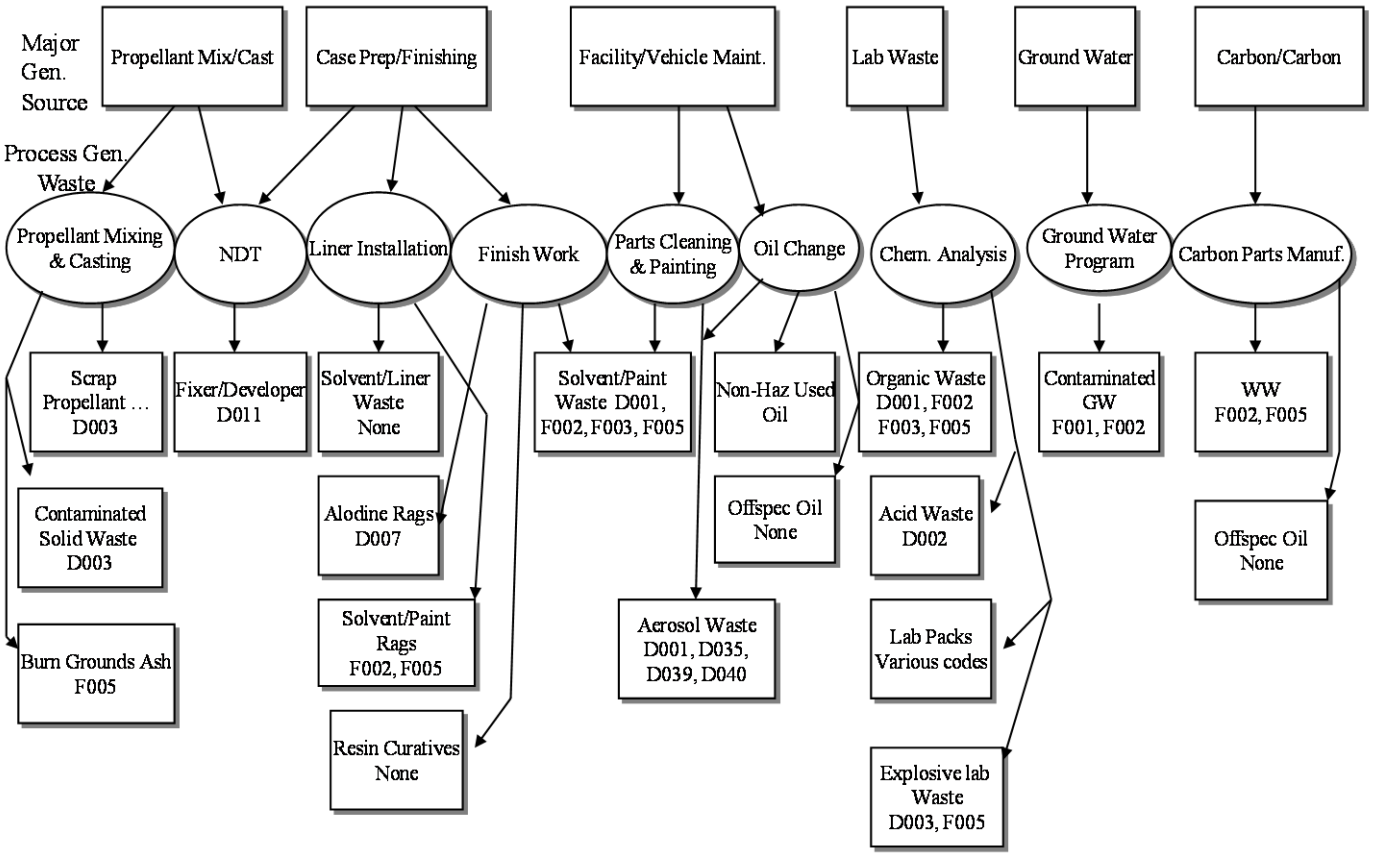
All waste treated at the NIROP Burning Grounds are generated at the ATK-Bacchus facility. These reactive wastes are derived from energetic materials that have been manufactured to strict specifications. Therefore, the chemical composition of each formulation is well known. As

discussed above, ATK-Bacchus characterizes all reactive waste streams using generator knowledge. While these energetic waste streams are not analyzed prior to being treated, ATK-Bacchus does review the reactive waste profile on an annual basis or any time the manufacturing process changes.

3.5.2 Frequency of Analysis for Chemical Waste

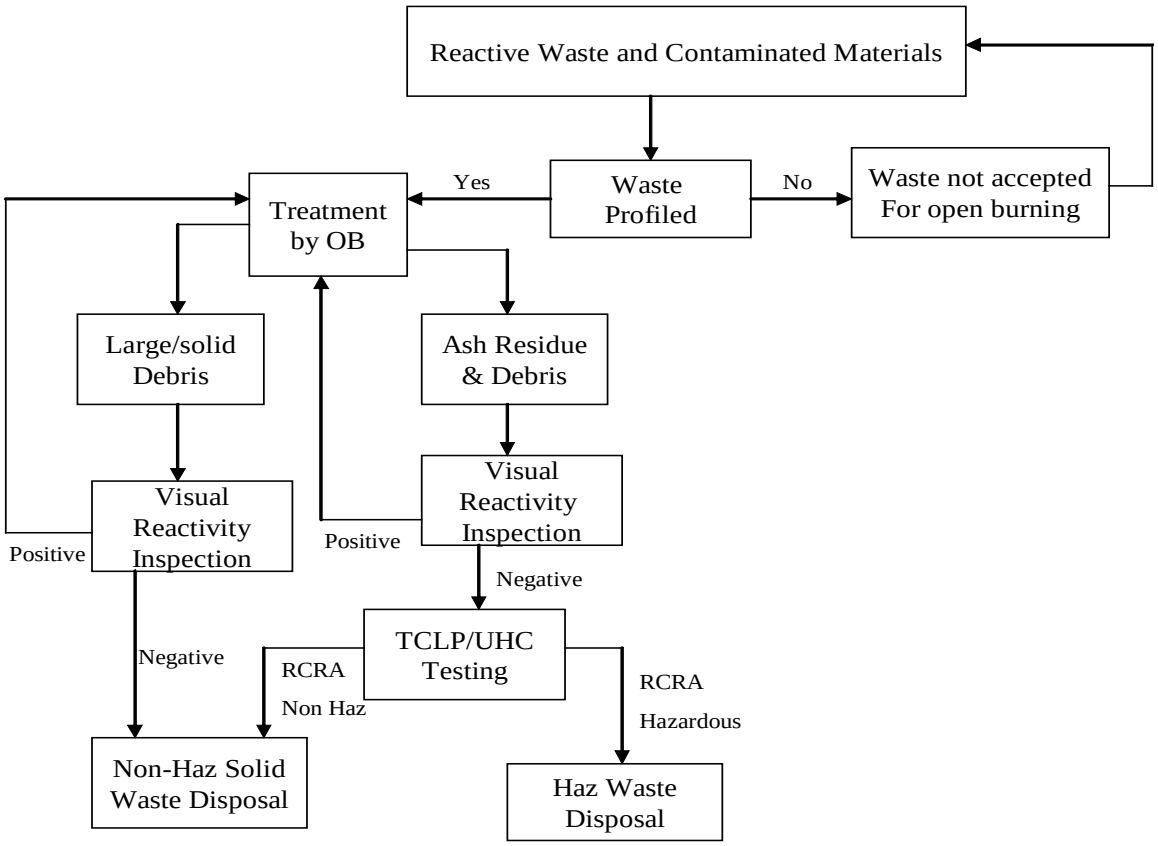
The industrial processes at ATK-Bacchus generate a number of routine waste streams. Figure 3-1 shows major waste streams and process generating the waste. These waste streams will be evaluated annually to verify waste characterization is still accurate. The waste characterization will also be re-evaluated whenever the process that generated the waste changes to determine if the process change altered the characteristics of the waste stream.

Off specification commercial chemical products are well characterized by the information of their MSDSs. These wastes are not analyzed on a routine basis.

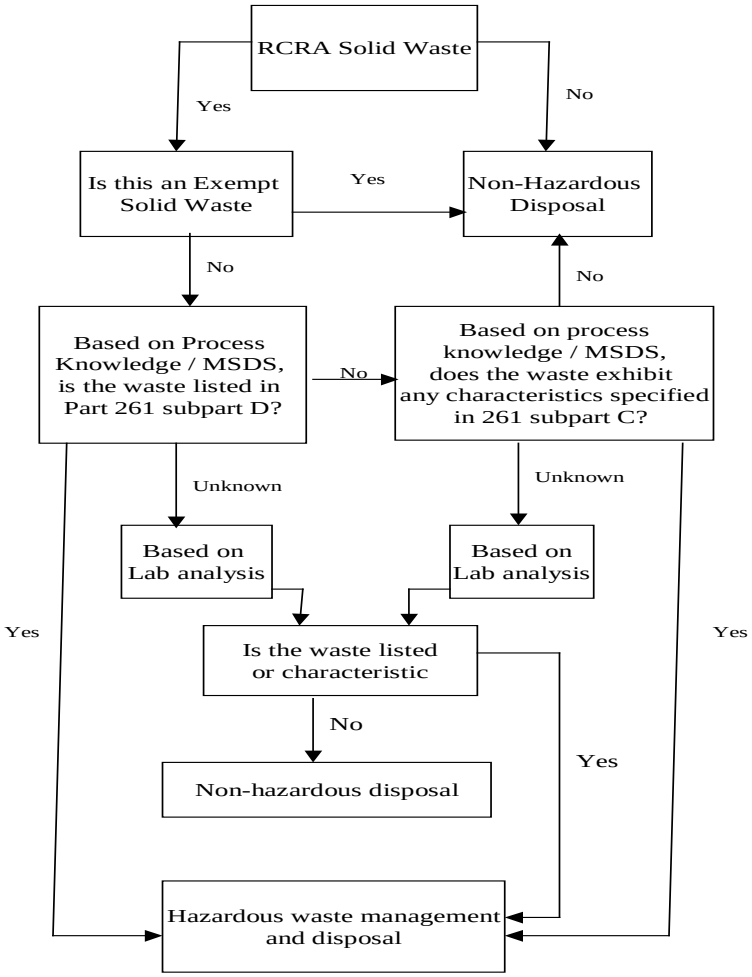


Note: The EPA codes included above are primary codes only, The above list includes major waste streams only.

ATK- Bacchus Waste Generation
Figure 3-1



Reactive Waste Treatment and Disposal Decision Matrix
Figure 3-2



Chemical Waste Disposal Decision Matrix
Figure 3-3

Figure 3-4

Analytical Methods for Metals

Parameter	Analytical Method	Preparation Method [1]
Arsenic	EPA 6010C	EPA 3005A (W) & 3050B (S)
Barium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Beryllium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Boron	EPA 6010C	EPA 3005A (W) & 3050B (S)
Cadmium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Chromium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Copper	EPA 6010C	EPA 3005A (W) & 3050B (S)
Lead	EPA 6010C	EPA 3005A (W) & 3050B (S)
Manganese	EPA 6010C	EPA 3005A (W) & 3050B (S)
Mercury	EPA 7470A (W) & 7471B (S)	EPA 7470A (W) & 7471B (S)
Molybdenum	EPA 6010C	EPA 3005A (W) & 3050B (S)
Nickel	EPA 6010C	EPA 3005A (W) & 3050B (S)
Selenium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Silver	EPA 6010C	EPA 3005A (W) & 3050B (S)
Thallium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Vanadium	EPA 6010C	EPA 3005A (W) & 3050B (S)
Zinc	EPA 6010C	EPA 3005A (W) & 3050B (S)

Analytical Methods for Organics

Parameter	Analytical Method	Preparation Method
Volatile Organics	EPA 8260B	EPA 5030C (W) & 5035A (S)
Semi-volatile Organics	EPA 8270D	EPA 3510C (W) & 3550C (S)
TPH	EPA 8015D	EPA 3510C (W) & 3550C (S)
TOC	EPA 9060A (W only)	EPA 9060A (W only)
Oil & Grease	EPA 1664A (W only)	EPA 1664A (W only)

Miscellaneous Test Methods

Parameter	Analytical Method	Preparation Method
pH	EPA 9040C (W) & 9045D (S)	EPA 9040C (W) & 9045D (S)
Ignitability	EPA 1010A (W only)	EPA 1010A (W only)
Toxicity	EPA 6010C/7470A (Metals/Hg) EPA 8260B (Volatile Organics) EPA 8270D (Semi-volatile Organics)	EPA 1311 Followed by 3010A/7470A[2] EPA 1311 Followed by 5030C EPA 1311 Followed by 3510C
Explosives	EPA 8330A	EPA 8330A
Perchlorate	EPA 314.0	EPA 314.0
Anions	EPA 9056A	EPA 9056A (W) & 5050 (S)
TSS	SM 2540D	SM 2540D
TS	SM 2540B	SM 2540B

1. The 'W' indicates a water matrix. Samples that are water soluble liquids (or aqueous phase) fit into this category. Non-aqueous liquids are usually treated as solids depending on the test method. In the case of an oil matrix that cannot be analyzed by the solid preparation method, a waste dilution is often performed. The ‘S” indicates a solid matrix.
2. Mercury will be prepared using Method 7470A.

4.0 PROCESS INFORMATION

ATK-Bacchus has two distinct hazardous waste management systems - one for reactive wastes, and one for chemical wastes. All hazardous waste management operations are conducted by ATK-Bacchus. The collection/process information of these two systems is addressed separately in the following text.

4.1 WASTE CHARACTERIZATION

Wastes will be characterized to identify hazardous properties to ensure they are properly managed. Section 3 identifies the WAP that will be used to characterize and classify both reactive and chemical wastes.

4.1.1 Reactive Waste

The primary products produced at ATK-Bacchus are solid rocket motors cast with either Class 1.1 or Class 1.3 propellants. Class 1.1 propellants typically contain liquid explosives such as nitroglycerin and solid ingredients such as nitrocellulose, HMX, RDX, aluminum, and ammonium perchlorate. Class 1.3 propellants typically contain a non-explosive liquid binder and solid ingredients such as aluminum and ammonium perchlorate. Reactive wastes produced from or as part of the manufacturing process include, but are not limited to the following: cured and uncured propellants, rocket motors, small initiating devices, propellant scrap, and explosive ingredients (HMX, aluminum, ammonium perchlorate, etc.). Liquid explosive wastes, typically containing nitroglycerin, are diluted and absorbed in wood pulp. Reactive wastes can also include contaminated materials incidental to the manufacture of explosives such as rags, gloves, other personal protective equipment, plastics, rubber, and paper.

Waste Class 1.1 and Class 1.3 materials are characteristic hazardous wastes for reactivity (D003). Nearly all of the reactive wastes generated at the facility are reactive due to the presence of propellants and explosives. Some reactive wastes, primarily from laboratory operations, may contain solvents and be listed wastes as defined by R315-2 of the UAC.

A limited portion of the propellant and explosive waste streams are not considered reactive wastes because they contain minimal amounts of reactive material. The Department of Transportation (DOT) is responsible for identifying which materials meet Class 1.1 and Class 1.3 designations. The DOT has examined Class 1.3 waste streams produced at the facility, and determined that wastes containing less than 3% weight Class 1.3 material are properly classified as flammable solids (DOT hazard class 4.1). Wastes meeting this criterion, are based on generator knowledge and are visually inspected for minimal propellant content, are segregated from other reactive wastes and managed for offsite disposal as non-hazardous waste.

The DOT declined to define the concentration where a waste Class 1.1 reactive material will no longer be considered a reactive waste. The DOT indicated that a small amount of Class 1.1 reactive material within a waste stream could still be reactive. Consequently, the conservative assumption is that all Class 1.1 waste streams generated at the ATK-Bacchus facility are reactive wastes.

4.1.2 Chemical Waste

A variety of non-explosive characteristic and listed hazardous wastes ~~are~~is generated by operations at the facility. Used oil, universal wastes, and non-RCRA wastes are also generated. All wastes generated at the facility are evaluated for hazardous properties. This evaluation includes generator knowledge, information obtained from the manufacturer's material safety data sheets, and laboratory analysis. The Waste Analysis Plan (Section 3) provides the procedures, techniques, and protocols that will be used to evaluate wastes generated at the ATK-Bacchus facility.

4.2 HAZARDOUS WASTE GENERATION AND COLLECTION

Waste generated at the ATK-Bacchus facility is from batch and continuous operations. These wastes are accumulated in accordance with R315-5, Hazardous Waste Generator Requirements. Waste accumulation stations are operated under either the 90-day rule or the satellite accumulation rule. Operators of manufacturing, maintenance or testing operations that produce wastes are instructed in the proper requirements for the disposal of these wastes.

4.2.1 Reactive Waste Generation and Collection

ATK-Bacchus uses a variety of containers for reactive waste. Standard containers used at ATK-Bacchus are described in this section. However, due to the nature of our operation, new types of containers may be required in the future, and ~~can not~~cannot be described in this application. In lieu of describing all containers, the basic criteria for selecting and using containers have been provided. ATK-Bacchus will use the selection and use criteria in the DOD Contractor's Safety Manual for Ammunition and Explosives (DOD 4145.26-M) when selecting a container for explosive wastes. Chapter 15.7 of this DOD document identifies how containers for explosive wastes will be selected. All containers for reactive waste that are currently used, or will be used in the future will meet the DOD 4145.26-M requirements.

Operating buildings generating reactive wastes use a variety of collection containers. Excess pure propellant is collected in cardboard/wood containers known as SLIDs, or "slum-in-a-drum", which typically can hold up to 500 pounds of waste propellant. A SLID allows a significant amount of excess propellant to be collected in one container, reducing handling requirements for large amounts of propellant waste. SLIDs are constructed from cardboard "Sona" tubes (used as forms for cement pillars) that are glued and sealed onto a pallet. A groove is routered into the pallet's surface to accept the form as shown in Figure 4-2.1. Excess pure propellant is placed in a SLID at the end of the manufacturing process.~~,~~ ~~t~~The open tops of the SLIDs are then covered with antistatic plastic and sealed with tape. SLIDs are also used at storage buildings to hold slum bags, and to contain certain wastes during burning.

Contaminated materials generated during the manufacturing process (rags, gloves, personal protective wear, plastics, etc.) and smaller amounts of waste propellant are collected in aluminum containers that are commonly referred to as "slum pots~~".~~." Slum pots are specifically designed for the collection, transportation, and temporary storage of reactive waste within the operational boundaries of the ATK-Bacchus facility. Slum pots are constructed of seamless cold rolled aluminum that is 18 $^{3}/_{4}$ inches high by 18 $^{3}/_{4}$ inches in diameter and is ¼ inch thick or equivalent (see Figure 4-2.2). Each pot has

two lifting handles and has a hard rubber lid and hard rubber bottom that cushion and resist any abrasion during transportation. Both the lid and bottom are non-sparking.

Slum pots are lined with antistatic plastic bags (known as "slum bags") that contain the waste. When the slum bag is full or at the end of the operating shift, the waste is sealed inside the slum bag with a plastic tie and the slum tag described in Section 4.3.1 is attached.

As liquid explosive wastes, typically containing nitroglycerin, are generated they are diluted and absorbed in wood pulp to reduce their sensitivity. Liquid explosive wastes are accumulated in slum bags.

Contaminated wastes that are too large for slum pots or are generated in large volumes are collected directly into commercially available 30-gallon fiberboard drums. These drums have a removable lid that can be sealed in place with a locking chime after the drum is filled. Drums selected for this application are approved by DOT for highway transportation of hazardous materials and can be used to ship these wastes off-site for treatment and disposal.

Other less frequently used containers for waste reactive materials include wood pallets for large blocks of cured propellant or ammunition cans used for initiating and ordnance materials. Waste rocket motors are generally large enough to be their own container. Dry ingredients that can explode during burning can be placed in large flat cardboard boxes, similar to a pizza box, that allow the material to burn with minimal confinement during burning.

Explosive contaminated wastewater is collected in wastewater tanks at the point of generation. Where appropriate, the propellant "chips" and other suspended solids are filtered out before the wastewater reaches the tank and collected in slum bags. The wastewater is pumped into tanker trucks and delivered to a wastewater treatment plant where it is treated, if necessary, before being discharged to a local POTW or transported off-site for treatment and disposal.

Each operating building that generates reactive waste has an explosive waste collection shed located approximately 50 feet from the operating building. The collection sheds facilitate removal of propellant and explosive wastes from the operating buildings. The collection sheds are constructed of wood or corrugated metal and are secured to a six-inch concrete floor. The sheds are closed on three sides with the open front facing north (see Figure 4-2.3). The north aspect of the open front ensures that the wastes are not exposed to direct sun during temporary storage.

Reactive wastes are placed in these sheds either as they are generated or at the end of each operating shift. Waste containers that are not full at the end of a shift are sealed, a hazardous waste explosive tag is attached, and the container is moved to the temporary collection shed. For reactive wastes, the operating buildings and temporary collection sheds are managed as satellite accumulation stations. There are two exceptions to the use of these temporary storage sheds that include: 1) cold weather restrictions where certain Class 1.1 materials remain inside operating buildings because of safety concerns

with freezing, and 2) large objects such as SLIDs where use of a dock at the operating building allows for more efficient and safe pick up of the waste.

Containerized explosive wastes are picked up from the collection sheds using a vehicle approved for the transport explosive wastes. Extreme care is used when handling all explosive wastes. The wastes are transported to either a less than 90 day explosive storage building or a permitted explosive storage unit while the treatment preparations are being made. Explosive wastes are segregated by explosive classification. While in storage, slum bags containing similar types of explosive waste are often aggregated together in larger containers such as empty SLIDs to allow for ~~more efficient storage~~storage that is more efficient. Note that liquid explosive wastes always remain in slum pots during storage.

Propellant and explosive operating buildings at the ATK-Bacchus facility~~, including,~~ including but not limited to explosive waste storage areas, are designed and constructed in accordance to strict federal standards. These standards assure that such facilities are properly constructed for the type of reactive material used and/or stored at each area. These standards also require explosive buildings to be separated by sufficient distance, known as quantity-distance, to prevent an explosive event in one building from propagating to another building. Quantity-distance rules also control the location of propellant and explosive operating buildings with regard to public property (highways, parks, ~~etc~~etc.,) and private property. All buildings used for temporary storage of waste explosives are correctly sited with regard to these quantity-distance rules. Refer to Section 2.3 for a narrative on quantity-distance rules. Refer to Figure 2-3.15 for safe distances for prominent 90-day storage and permitted facilities.

4.2.2 Chemical Wastes

Site operations generate a wide variety of chemical wastes incidental to the manufacturing processes. These wastes include both listed and characteristic wastes in solid and liquid form. Used oil, universal wastes, and non-RCRA wastes are also generated and collected. Chemical wastes are stored in a variety of containers, which are compatible with the waste and can be closed. All containers shipped off-site for disposal meet applicable DOT container requirements. There are three different types of chemical wastes that are managed at the ATK-Bacchus facility: (1) routinely generated waste, (2) non-routinely generated waste, and (3) small container waste.

Routinely generated wastes include but are not limited to paints, coatings, solvents, and contaminated solids~~—~~. These wastes are generated in a quantity, which fills in less than 90-days. Non-routinely generated wastes are similar in nature to routinely generated items, but are generated infrequently and at low volumes. Routinely and non-routinely generated wastes are collected in a variety of containers. These wastes are managed in containers that are compatible with the waste.

Small container wastes, includes but are not limited to a wide variety of off-specification commercial chemical products. The sources for these wastes include shelf-life expired commercial chemical products, unused commercial chemical products, aerosol cans, laboratory chemicals, and/or unique chemicals that are not

routinely received. These wastes are easily characterized using generator knowledge and shipped to an approved TSDF is can-in-a-drum or the materials are lab packed.

Chemical wastes generated at the ATK-Bacchus operating buildings are transferred to HS-1 for storage prior to being shipped off-site to an approved TSDF for treatment and/or disposal.

4.3 WASTE TRACKING

Hazardous wastes generated or managed at the ATK-Bacchus facility are tracked. The waste tracking system manages information for both reactive and chemical waste. The tracking system is a combination of paper records and an electronic database.

4.3.1 Reactive Wastes

At the point of generation, the operator who packages the waste completes a Hazardous Waste Explosive tag (see Figure 4-3.4), which is attached to each waste container. The tag contains, at a minimum, the following information:

- The words “Hazardous Waste Explosive”;
- The date and building where the waste was generated;
- The waste explosive category for each type of explosive generated on plant (e.g. Class 1.1 propellant or Nitrate Ester, Class 1.3 propellant, liquid explosive, etc.). The operator checks each applicable category on the tag to indicate the contents of the container to which it is attached;
- The estimated explosive and total weight of the container; and
- “Prepared” and “Approved by” lines to indicate who prepared the waste and, where applicable, who inspected the waste.

Each tag is bar coded with a unique number used to track the waste in an electronic database system. Tag information for each waste is entered into the database by the generators. Subsequent handling of each container of waste is tracked through the bar code and a commercially available bar code scanner. The scanner reads the bar code whenever a container of waste is picked up at the generation site, stored at one of the container storage buildings described Section 4.4, treated at the NIROP Burning Grounds, or sent to an approved offsite treatment facility. The information in the scanner, when in operation, is downloaded daily into the electronic database that provides the permanent handling and disposal record for each container.

For reactive wastes at generation or storage locations, the database displays each container’s age in days for tracking purposes. This assists in meeting various environmental storage requirements for satellite accumulation, 90-day, or permitted storage areas.

For wastes treated at the NIROP Burning Grounds, the scanner and bar code are used to record (1) the day the waste was treated, (2) pan used to treat the waste, and (3) location on the burn pan. The weight of each container is maintained in the database and is used to track the total weight that is placed on a burn pan and the total weight burned on a given day.

Explosive wastes that are sent to an approved offsite treatment facility are tracked in the electronic database. The database tracks the manifest number(s) for every container shipped. In some cases, a number of slum bags are consolidated into a large reusable container that meets DOT shipping requirements. The waste tracking system identifies which containers are aggregated into the larger shipping containers.

Note that certain elements of the chemical waste tracking system as described in Section 4.3.2 are used for off-site shipments of reactive waste. These elements include hazardous waste manifest information such as transporter, manifest ship date, and manifest return date. In addition, certain large rocket motors, which are shipped off-site for disposal, are managed and tracked using the chemical waste tracking system.

4.3.2 Chemical Waste Tracking For Routine and Non-Routine Generated Waste

The ATK-Bacchus facility maintains an electronic waste tracking system that collects and manages the following information for routinely and non-routinely generated waste.

Wastes being accumulated at an operating area are labeled and managed in accordance with R315-5 of the UAC for either less than 90-day storage areas or satellite accumulation areas~~.~~. The tracking system maintains the following information that is collected to monitor the cradle to grave waste handling practices.

- Drum # -- A unique number assigned by ATK-Bacchus to each waste container.
- Waste Stream -- ATK-Bacchus' unique internal waste stream profile.
- Building # -- Building in which waste was generated.
- Manifest # -- Manifest number in which the waste was shipped under.
- Accumulation Date -- Date the container was given a number and delivered to a specific building.
- Pickup Date -- Date the container was received at HS-1.
- Quantity -- Weight of container ready for shipping.
- Status -- A code given to each container indicating whether it is in process or shipped to disposal facility.
- Storage -- Identifies storage locations.
- TSDF -- The facility where the material was delivered.
- Transporter -- The transporter used to transport the shipment.
- Ship Date -- Date the shipment left the facility.
- Return Date -- Date the fully signed manifest is received at ATK-Bacchus.
- Notes -- A brief description of the shipments contents.

4.3.3 Chemical Waste Tracking for Small Containers

Small containers of waste (i.e. waste that is eventually disposed as a lab pack) are entered into the small container database and stored in the appropriate lab pack cabinet based on the DOT classification for the material Small containers are accumulated until an adequate quantity has been amassed to fill a lab pack container. All lab pack containers are entered into the electronic tracking system as a non-routine generated waste. The following information is collected for each small containers of waste:

- Name - chemical or commercial name of the waste;

- Container # - database tracking number;
- Size - size of the container;
- Type - type of container (e.g. plastic, glass, metal, ~~etc~~etc.);
- State - physical state of the waste;
- Date - date received; and
- DOT - Department of Transportation classification.

Any small container held in storage for longer ~~that~~than one year will be managed in accordance with Section 4.9.

4.4 HAZARDOUS WASTE STORAGE

ATK-Bacchus stores hazardous wastes prior to disposal. Reactive and chemical wastes are stored in designated facilities, and segregated according to compatibility requirements.

4.4.1 HS-1

Chemical wastes are managed at HS-1. Routinely generated wastes, non-routinely generated wastes, and small containers are all managed at this facility. HS-1 is primarily used for the storage/handling of solids and a limited amount of liquids. The facility functions as both a storage area for full containers, and a waste accumulation area where like wastes are combined into larger containers and small containers are assembled into lab packs.

HS-1 is used to store listed or characteristic waste. Figures 4-4.5 and 4-4.6 show the floor plans for Buildings 8562, 8567 and 8568, and a typical configuration for the buildings. Aisle space will be maintained at a 30-inch minimum, except in the small container storage cabinets. All containers will be tracked using the waste tracking system described in Sections 4.3.2 and 4.3.3.

Containers for routinely and non-routinely generated waste will be identified using the unique drum number issued by the electronic waste tracking system. They can also be identified with the labels used to ship the container to a TSDF or with the label used while the container was being generated. All non-RCRA waste stored at HS-1 will be identified in and tracked by the electronic waste tracking system. Non-RCRA wastes will be included in the volume used to track compliance with the storage capacities for the HS-1 buildings. Small containers of waste stored in the lab pack cabinets will be managed using the electronic tracking system, but will not be individually labeled.

Chemical compatibility will be ensured by storing waste materials at HS-1 in accordance with the Segregation Table for Hazardous Materials in 49 CFR 177.848 or 49 CFR 173.12(e) for lab packs as applicable. ~~Non lab~~Non-lab packed liquids identified in the table as prohibited or restricted will be isolated and stored in separate containments from other materials. Non-liquids identified in the table as prohibited or restricted will be separated from incompatible waste by at least 30-inch. The following additional rules will apply:

- Liquids with a pH less than 2 will not be stored in the same containment as liquids that are classified as Class 3 flammable liquids. However, liquids with a pH greater than 12.5 may be stored with flammable liquids.

- Small containers of waste will be stored in cabinets, and separated by DOT hazard class until they are lab packed according to the 49 CFR 173.12.

- Class 9 and non-regulated materials may be stored with any class of material.

Spill containment pallets are provided in buildings 8567 and 8568 to segregate incompatible wastes while in storage. If incompatible wastes are stored in the same containment area, the containers will be isolated from one another with a containment pallet. HS-1 is inspected daily when in use, and weekly when not in use to ensure container integrity and to correct any problems that might result from leaking containers. The inspection includes a visual inspection of the sump, and containment pallets where spilled liquids would accumulate. Refer to HS-1 inspection requirements in section 5.0~~,"~~,"Procedures to Prevent Hazards."

All storage of regulated waste at HS-1 will occur in totally enclosed buildings. There is no concern regarding precipitation run-on or run-off.

4.4.2 ES-1

ES-1 is used to store any of the explosive wastes listed in section 4.1.1. Figure 4-4.7 shows a floor plan and a typical storage configuration of the building. Due to limited storage space, the aisles will be maintained at a minimum of 24 inches. The typical containers (e.g. 30-gallon level packs) stored in the building have a 19-inch diameter. The 24-inch minimum aisle space provides sufficient spacing for safe handling, movement of personnel, spill control equipment, and decontamination equipment. Any containers larger than 19 inches in diameter will require a 30-inch aisle space.

This building has an automatic fire protection system, so that a fire can be fought remotely. Employees are not permitted to fight fires inside an explosive storage building. Each container will be labeled with a unique identification number, which will be entered into the waste tracking system described in Section 4.3.

Storage compatibility will be assured by requiring a 24-inch minimum space between 1.3 and 1.1 propellants and/or propellant ingredients when the container diameter is 19 inches or less. If the container diameter is larger than 19 inches, then a 30-inch minimum spacing will be maintained. NG remover will not be stored in this building.

This storage area is totally enclosed, so there are no precipitation run-on or run-off concerns. Free liquids are not stored in the building.

4.4.3 RH-1

RH-1 (see Figure 4-4.8) is used to store whole and sectioned rocket motors in addition to any of the explosive wastes listed in section 4.1.1. A minimum 30-inch aisle space will be maintained for all motors and containerized waste. Products and wastes are stored in this building. All wastes stored in this building will be clearly identified and segregated from products.

All containers of waste will be labeled with a unique identification number, which will be entered into the waste tracking system described in Section 4.3.1.

Whenever 1.1 and 1.3 propellant, propellant ingredients, or 1.1 and 1.3 waste propellant or waste propellant ingredients are stored at RH-1, an aisle space of at least 30 inches will be maintained to assure that the wastes are not commingled. NG remover, which is incompatible with 1.1 and 1.3 products and wastes, will not be stored in RH-1.

This storage area is totally enclosed, so there are no precipitation run-on or run-off concerns. Free liquids are not stored in the building.

4.4.4 Segment Storage

Segment Storage (see Figure 4-4.9) is used to store only Class 1.3 product and waste. The wastes will be in the following forms: motor segments, propellants, propellant ingredients and contaminated wastes placed in containers described in Section 4.2.1. The Class 1.3 products will be finished motors that are awaiting shipment to our customers. ATK-Bacchus will not store product and waste on the pad at the same time.

Motor segments will have a minimum 30-inch inspection aisle around the trailer or storage chock. Containers will be stored in enclosed locked trailers, and will have a minimum 24-inch inspection aisle for containers 30 gallons or less in volume, and a 30-inch minimum aisle space for containers larger than 30 gallons. To permit efficient storage, slum bags may be aggregated in other containers besides slum pots including empty SLIDs and reusable plastic shipping bins. A 30-inch aisle space will be provided for these larger intermediate containers.

The motor cases are made of impervious layers of rubber and resin-impregnated graphite fiber. The open ends of the motor cases are sealed, usually with plastic sheeting or a foam insert, and are grounded to prevent the ~~build up~~buildup of static charges. All other materials will be stored in slum bags.

Each container of waste will be labeled with a unique identification number, which will be entered into the waste tracking system described in Section 4.3, and the words "Hazardous Waste" and the date of accumulation. All products will be identified by the shipping documentation that accompanies the motor. Since only Class 1.3 materials can be stored on this area, there are no storage compatibility concerns.

All of the products and wastes stored on this pad will be covered, and will not be exposed to precipitation. Motors will be covered with a tarp or inside a shipping container, and containers will be stored inside an enclosed locked trailer. There are no precipitation run-on or run-off concerns. No free liquids are stored on this pad.

4.5 DISPOSAL OF REACTIVE WASTE

Reactive wastes are managed differently based on the treatment method. The treatment options include, but are not limited to, open burning on-site at the NIROP Burning Grounds, open burning or detonation at the ATK facility near Promontory,

Utah (ATK-Promontory), open burning or detonation at the Utah Test and Training Range (UTTR) located at Oasis, Utah or offsite treatment and disposal at another TSDF. The small non-hazardous portion of reactive waste can be treated at an appropriate commercial offsite facility. The following sections provide more details on the collection and management of reactive wastes prior to being prepared for one of the disposal options. The following sections provide more details on each of these options.

4.5.1 Off-site Disposal of Reactive Waste

Propellant and explosive wastes amenable to public transport are currently shipped off-site to an approved hazardous waste treatment facility. Federal regulations impose strict requirements for the transportation of explosive materials on public highways. All explosive materials must be examined and approved by the DOT or an authorized military agency prior to shipment. Testing is often necessary to determine the hazardous nature of each explosive material and to verify the integrity of the packaging method selected for each waste. These federal requirements are followed whenever explosive wastes are shipped from the ATK-Bacchus facility to assure that they are shipped safely.

The primary off-site treatment facility for ATK-Bacchus is the ATK-Promontory facility located approximately 100 miles north of ATK-Bacchus. ATK-Promontory is located in a much more remote area compared to the urban setting of the ATK-Bacchus facility and is an approved hazardous waste treatment facility, permitted to conduct open burning of explosive wastes. In general, routinely generated production waste is transferred to ATK-Promontory if approved shipping methods can be developed. Production wastes that remain at ATK-Bacchus for open burning are difficult to ship because they are odd sized, generated in small quantities, have explosive safety hazards, or cannot be shipped on public highways.

Some of the production wastes routinely shipped to ATK-Promontory includes:

- SLIDs containing pure Class 1.1 or Class 1.3 propellant are shipped with a plywood cover placed over the top of each SLID and banded in place.

- Class 1.3 contaminated wastes: Slum bags containing contaminated wastes (rags, gloves, wipes, etc. contaminated with >3% reactive material) are placed in lined, reusable plastic bins for shipment. Up to 350 pounds of waste can be aggregated in each bin. Each bin is closed and secured with plastic banding prior to shipment. Contaminated Class 1.3 wastes too large to fit in slum bags are shipped in individual, sealed 30-gallon fiberboard drums.

- Explosive contaminated packaging: Contaminated packaging, such as, the cloth and plastic bags that HMX and RDX products arrive in from the vendor. After being emptied, these contaminated bags are shipped to Promontory in sealed 30-gallon fiberboard drums for treatment.

- Waste HMX and RDX: HMX and/or RDX is wetted, with a minimum, of 15% by weight water and accumulated in plastic lined 30-gallon fiberboard drums. Additional packaging requirements for HMX or RDX are described later in this section.

Propellant and explosive wastes are also sent to UTTR (Utah Test and Training Range), located approximately 70 miles west of the ATK-Bacchus facility. UTTR is an approved hazardous waste treatment facility, permitted for open burning and open detonation of explosive wastes that are the property of the Federal government. Whenever possible, waste rocket motors and large sections of rocket motors that meet this requirement are sent to this facility for treatment. UTTR typically conducts operations in the spring, summer, and early fall. If necessary, materials are stored at ATK-Bacchus until UTTR is available for disposal.

The ATK-Bacchus facility is used as a staging point for obsolete rocket motors that are awaiting treatment at UTTR. The rocket motors are received by ATK-Bacchus as products or hazardous waste. The obsolete rocket motors are always shipped to UTTR properly labeled as hazardous waste using a hazardous waste manifest. Shipments are on public highways or via a combination of rail and public highway.

HMX and RDX are supplied to the ATK-Bacchus facility by the Federal government. Waste HMX and RDX derived from the product supplied by the Federal government are the property of the Federal government and can be treated at UTTR by open detonation. These wastes can also be treated at ATK-Promontory by open burning, or at another approved TSDF. In order for HMX and RDX to be transported over public highways, it must be wetted with a minimum of 15% by weight water. Waste HMX and RDX are accumulated in plastic lined 30-gallon fiberboard drums, which hold up to 300 pounds of wetted HMX or RDX per drum. The fiberboard drums are always maintained in a closed condition unless ATK-Bacchus is adding waste to the container or verifying the water content inside the bag. Packing will conform to 49 CFR 172.101 Hazardous Material Table requirements for HMX.

The drums of waste HMX and RDX are accumulated until quantities permit efficient shipment. Waste HMX and RDX are usually stored at ES-1, but can be stored at other ATK-Bacchus permitted explosive storage units. Waste HMX and RDX are shipped via public highways using a hazardous waste manifest and a licensed transporter.

It should be noted that smaller quantities of HMX or RDX (usually 3-5 pounds) and HMX or RDX mixed with other ingredients during processing are not shipped to UTTR or ATK-Promontory. This waste is collected and burned at the NIROP burning grounds in small increments of 10 pounds or less. When generated, this waste HMX or RDX is stored at one of the permitted explosive storage units or in one of the less than 90-day explosive storage areas.

The DOT has classified Class 1.3 contaminated wastes containing less than 3% reactive material as a flammable solid. While this material is not a reactive waste, it is still collected with other reactive wastes and packaged in explosive waste storage buildings. Operators use generator knowledge and a visual inspection of the waste to determine which slum bags contain less than 3% reactive material. This waste is typically packaged in 30-gallon fiberboard drums. After it has been packaged and properly labeled as a flammable solid, it can be stored at HS-1 with other chemical wastes until shipment to a commercial hazardous waste treatment facility.

4.6 MANAGING CHEMICAL WASTE AT HS-1

Containers of chemical waste are accumulated and stored at HS-1. Activities performed at HS-1 include: (1) receiving containers, (2) consolidating waste, (3) managing small containers, (4) preparing lab packs, and (5) coordinating the shipment of waste to an offsite TSDF.

Chemical waste containers are delivered to HS-1 for storage. Full 55-gallon drums are typically delivered directly to the storage area in building 8567 or 8568. Upon arrival, all containers are inspected to ensure they are safe to store. The tracking system is updated and the container number is checked to ensure that it is visible and legible. Containers are then stored based on type of waste, and compatibility restrictions. Occasionally partial containers are received and are moved into the handling area in building 8562 where the contents can be combined with other partial containers of the same waste. To facilitate combining partial containers, accumulation drums are located in building 8562.

Small containers include, but are not limited to, off-specification commercial chemical products and shelf life expired, and/or partial containers of commercial products used in the manufacturing areas such as paints, adhesives, coatings, curing agents, and laboratory reagents. These wastes are processed through the chemical handling area in building 8562 within 2 business days. Processing time is documented using form FOP-0061 (Figure 4-6.10). Due to the variety of excess property regulations, which govern government supplied, and contractor-supplied materials, processing time may be documented using other sources as long as the material description and date received are provided. Small containers are accumulated and managed in the storage cabinets until they are lab packed and shipped to an approved off-site TSDF~~—~~. Small containers may also be transferred directly to accumulation drums referred to as “cans-in-a-drum” and stored until they are shipped to an approved off-site TSDF.

Common wastes such as paints, coatings, and amine curing agents are profiled by an approved TSDF. These profiled wastes are placed directly into accumulation drums upon receipt at HS-1. Accumulation drums, or “cans-in-a-drum” containers, are located in buildings 8562 and 8567.

Wastes that are not commonly used are lab packed for off-site treatment and/or disposal. Wastes to be lab packed are placed in storage cabinets located in Building 8567 and Shed B based on their DOT classification. Small containers that require refrigeration are stored in the refrigerator located in building 8562. Identification and classification of small containers is done by using generator knowledge, the manufacturer’s information, or the MSDS. Containers that are not properly labeled are temporarily classified for storage using simple finger printing techniques such as screening the substance for pH, water reactivity, and ignitability. Wastes that are negative for these tests are temporarily classified as Class 9 until laboratory testing can be conducted to identify the presence of hazardous waste constituents. Small containers of chemicals are stored in cabinets until an adequate volume is accumulated to lab pack and ship to an approved TSDF. The storage time for small containers may exceed one year.

Other activities conducted at HS-1 include preparing drums for shipment to approved TSDF. HS-1 also prepares and labels empty containers for delivery to the generating area.

4.7 OFF-SITE DISPOSAL

Prior to the shipment of any hazardous waste to an off-site TSDF, containers are marked and labeled and shipping papers are prepared in accordance with 49 CFR 172, and R315-5-2 and R315-50-1. Only permitted treatment storage and disposal facilities are used.

4.8 RECEIVING HAZARDOUS WASTE FROM OFF-SITE

The ATK-Bacchus facility periodically receives hazardous waste from off-site locations. It is generally limited to waste generated at other ATK owned facilities. However, reactive waste including rocket motor segments from any source may be received for storage.

All off-site generated hazardous waste will be reviewed and approved prior to being accepted using the information listed below. Upon receipt, all off-site generated hazardous waste will be visually inspected to ensure that it meets ~~it's~~ the profile description and that the manifest is correct. All discrepancies will be resolved with the generator before the waste is received. After the waste has been accepted, it will be managed using the tracking system described in section 4.32 and 4.3.3. Purge water from ATK-Bacchus operated off-site ground water monitoring wells is exempt from the requirements in this paragraph, except for the manifest requirements.

- EPA hazardous waste number(s)
- Physical description
- Chemical description
- Source of the waste
- Sampling frequency
- Parameter for Analysis
- Handling code
- Tracking system number
- DOT shipping description
- Safe handling instructions

4.9 STORING WASTES FOR LONGER THAN ONE YEAR

Under the conditions described below the following materials may be stored for longer than one year:

- Wastes designated for disposal at UTTR where disposal arrangements and/or approvals cannot be completed within one year.
- Rocket motors or motor sections that lack adequate approvals to ship off-site and/or lack sensitivity data to develop a disposal plan in less than one year.
- Small containers stored at HS-1 may also exceed one year when there is not adequate volume to fill a lab pack container or difficulty in arranging disposal at a TSDF.

A report will be submitted annually no later than January 31st, identifying any waste in storage longer than one year.

5.0 PROCEDURES TO PREVENT HAZARDS
[R315-8-3 of the UAC and 40 CFR 264, Subpart C]

The Bacchus Facility is a collection of hazardous waste management units that are all operated by ATK. The Bacchus Facility consists of the Plant 1 and NIROP facilities. Plant 1 regulated units include: HS-1, ES-1, Segment Storage and RH-1. NIROP regulated units include: ES-2, NIROP Burning Grounds and Ash Storage Pad. All of these units are designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or the release of hazardous waste or hazardous waste constituents into the air, soil, or surface water that could threaten human health or the environment. This plan covers the safe handling procedures employed at the waste management units at both the Plant 1 and NIROP facilities.

5.1 SECURITY

5.1.1 Security Procedures and Equipment

ATK provides 24-hour security of the Bacchus Facility through the use of fences, by limiting access at entrance gates, having armed security force that patrols the Bacchus Facility, and by staffing a private fire department. The NIROP Facility is located within the Bacchus Facility boundary fence.

5.1.2 Surveillance System

Entrance into the Bacchus Facility is controlled by security guards that are stationed at the main entrance gates and under the direct supervision of the facility's Security Department or through the use of ATK issued identification card that allows access through card-operated gates equipped with digital surveillance cameras.

Access to the Bacchus Facility is limited to authorized personnel who have a valid Bacchus Facility identification badge on their person that is clearly displayed. Features of the security and surveillance system include:

- All Bacchus Facility employees are issued an identification badge;
- All visitors to the Bacchus Facility are required to obtain visitor passes, a temporary identification badge from the facility's Security Department;
- Escorted visitors will be accompanied by a Bacchus facility employee while they are on-site;
- Unescorted visitors, e.g., contractors, must successfully complete the Bacchus Facility's Security and Safety training before they can enter the Bacchus Facility alone;
- All employees and visitors on the Bacchus Facility are required to always clearly display their Bacchus Facility identification badge while on the site;
- All visitors entering the Bacchus Facility will go through one of the access gates;
- Contractor and commercial vehicles may enter contractor gates after proper clearance has been secured; and
- All gates to the site are closed and locked during non-operating hours.

5.1.3 Barriers and Means to Control Entry

An eight foot tall perimeter security fence surrounds the entire Bacchus Facility with access available only through controlled gates. The perimeter fence is monitored daily by armed security personnel. Repairs to the fence are made when they are identified. The location of the boundary fence and gates are shown on Figure 5-1.1.

Hazardous Waste Management Facility Barriers

All of the hazardous waste management facilities are located inside the secured perimeter for the Bacchus Facility.

NIROP waste management units - the ES-2 building is locked when unoccupied. Ash Storage Pad is an open air storage pad that is immediately adjacent to the NIROP Burning Grounds and has no secondary fencing. The NIROP Burning Grounds is a fenced compound that is located inside the perimeter fence for the Bacchus Facility. The fence surrounding the NIROP Burning Grounds is kept locked when the unit is unoccupied.

Plant 1 waste management units - the ES-1 and RH-1 buildings are locked when unoccupied. Segment Storage is an open air pad that has no secondary fencing. The HS-1 facility is composed of a number of storage buildings that are located inside the perimeter fence for the ATK-Bacchus facility. This unit has no secondary fencing, but the doors to the liquid storage areas are locked at the end of each working day.

5.1.4 Warning Signs

Warning signs are posted at approximate 500-ft intervals, at fence corners, and at each gate along the fence. In addition each hazardous waste storage and treatment unit is posted with a sign that reads “Danger, Unauthorized Personnel Keep Out” or similar wording. The signs are written in English and are legible at a distance of at least 25 feet. The signs are posted at each entrance and at normal approach routes to the active portion of each hazardous waste management unit.

5.2 SITE FACILITY INSPECTIONS

5.2.1 General Inspection Requirements

Routine inspections are conducted at all hazardous waste management units located at the Bacchus facility. The inspections are designed to detect equipment deterioration and malfunctions, operator errors, and accidental leaks or spills that could lead to the release of hazardous waste or hazardous waste constituents to the environment and/or threaten human health.

The inspection forms for the hazardous waste management units are presented in Figures 4-6.10, 4-6.15, 5-2.2, 5-2.3, 5-2.4 and 5-2-5. The common non-emergency problems that may be encountered during an inspection are listed on the inspection forms. All inspectors will be trained in what constitutes acceptable and unacceptable conditions for both emergency and non-emergency situations. A log of this training is maintained in the Bacchus Facility’s employee training record. The inspector is required to check each item on the form and indicate whether its condition is acceptable or unacceptable. If the status of a particular item is unacceptable, the inspector will detail the problem and describe what type of corrective action will be taken to correct the problem. This information is recorded on the applicable inspection form.

All non-emergency items will be corrected within 90 days of the date of discovery. A non-emergency item is anything that does not have the potential to escalate into an imminent endangerment to human health or the environment, create hazards to Bacchus Facility personnel or visitors, or would not involve into a situation that would immediately affect Bacchus Facility production or waste handling activities. All corrective action activities will be identified on the inspection record. The date the problem is corrected will also be documented. Problems requiring an extended period to correct may be addressed using a temporary work around solution until a permanent solution can be implemented as long as the temporary solution does not present a risk to human health or the environment.

All temporary solutions will be documented on the inspection form in the operating record. Whenever a temporary solution is implemented, ATK will provide justification upon request to any authorized representative of the ~~Executive Secretary~~Director detailing the need for the temporary solution and explaining why the non-emergency item could not be corrected within 90 days. If ATK cannot correct the problem that required a temporary solution within 180 days of the date of discovery of the problem, then ATK will submit a request to modify the permit so that the problem can be corrected.

An emergency situation is defined as any situation that could escalate into imminent endangerment to human health or the environment, create hazards to Bacchus Facility personnel or visitors, or involve situations that could affect the Bacchus Facility's production or waste management activities. Emergency situations include, but are not limited to the following: (1) spill or leak of a reportable quantity any hazardous waste, material or substance; (2) incompatible storage of wastes, materials or substances; (3) storage of wastes, materials or substances in unlabeled or unknown containers; and (4) storage containers in poor condition (e.g. the container cannot be closed properly or has damage that may compromise the integrity of the container) The inspectors will clearly document and detail all emergency situations discovered during an inspection. All emergency situations will be corrected, contained or stabilized within 72 hours from the time of discovery. All operations at a facility with an emergency situation will be halted until the emergency situation is resolved.

In the event that an emergency involves the release of hazardous waste or hazardous waste or hazardous waste constituents to the environment, efforts will be directed towards containing, removing, and cleaning up or decontaminating the affected area. Chapter 6 of this permit application, the Hazardous Waste Contingency Plan, details the processes for reporting and managing corrective action of a release to the environment.

All inspection records will be maintained for a minimum period of 3 years from the date of the inspection. Each inspection record will identify the name of the inspector, and the date and time the inspection was performed.

5.2.2 Inspection Criteria

The inspector checks the status and condition of each item and records the finding. If the condition of a particular item is unacceptable, the inspection will record appropriate and complete information on the issue, including the date of discovery, the nature of the repair needed, and date when corrective action took place. When deterioration or malfunctions of facility equipment, errors, or accidental leaks and spills are noted, the inspector takes prompt action to correct the problem. If the inspector is unable to correct the problem immediately,

the facility supervisor will be informed. If the problem cannot be corrected within 24 hours, the facility supervisor will notify Bacchus Facility Environmental Services. All corrective actions or repairs are recorded on the appropriate inspection record form.

The following tables identify inspection items and criteria for each hazardous waste management unit identified in this permit application.

Table 5.1 Burning Grounds Pre-burn Inspection (see Figure 4-6.10)	
Inspection Items	Inspection Criteria
Radio	Verify the radio works properly
Telephone	Verify the telephone works properly.
Fire Extinguisher	Verify that at least one (1) fire extinguisher is present, and access is not blocked. If the extinguisher has a pressure gage, verify it is in the normal range; if not, verify the plastic seal is in place.
Fire Blankets	Verify the fire blankets are in the designated locations.
Diesel Storage	Verify the condition of the container – no signs of leaks.
Siren & Flashing Light	Verify the siren and flashing light is operational.
Warning Sign	Verify that warning sign is intact and in good repair.
Unburned Slums	Check previous Post Burn Inspection for location of unburned slums and residue
Ejected Material	Visually inspect the area around the pans burned on previous date for unburned material. Collect any unburned material.
Pan Water Leakage	Visually inspect the pan for leaking pan water.
Pan Water Level	Visually inspect the pan for water on the pan surface. Pump the pan if water is observed.
Residue Cleaning	Visually inspect the pans burned previously for residue. Collect and dispose of any residue if present.
Resistance Check	Acceptable value is an open circuit (no short circuit)

Table 5.2 Burning Grounds Post Burn Inspection (see Figure 4-6.15)	
Inspection Item	Inspection Criteria
Radio	Verify the radio works properly.
Telephone	Verify the telephone works properly.
Fire Extinguisher	Verify that at least one (1) fire extinguisher is present, and access is not blocked. If the extinguisher has a pressure gage, verify it is in the normal range; if not, verify the plastic seal is in place.

Table 5.2 continued

Inspection Item	Inspection Criteria
Fire Blankets	Verify the fire blankets are in the designated locations.
Diesel Storage	Verify the condition of the container – no signs of leaks.
Open Flame or Hot Spots	Verify that no open flame or hot spots are present from previous burn.
Pan and Cage Cleaning	Clean pan and cage surface according to procedure.
Unburned Residue Collected	Unburned residue collected on pans, cage or separate container if present.
Ejected Material	Visually inspect the area around the pans burned on previous date for unburned material. Collect any unburned material and place it on the pan or cage.
Asphalt surface around pans and cage	Asphalt surface around pans and cage swept to collect ash, weather permitting
Ash Storage	Containerize ash and burned residue according to procedure.
Ash Storage Housekeeping	Verify the ash storage pad is clean of ash. Sweep and or collect any material; weather permitting.
Unburned Waste	Cover unburned waste if not burned by 6 PM on the calendar day following the burn, temperature permitting

Table 5.3
Monthly Burning Grounds Perimeter Inspection Record
(see Figure 5-2.2)

Inspection Items	Inspection Criteria
Description and location of explosive material found around NIROP Burning Grounds perimeter	Identify by type and location any explosive or explosive contaminated materials visible on the South, West, and North areas outside the perimeter fence.
Disposition of explosive material found around NIROP Burning Grounds perimeter	Identify handling, storage, and disposal methods for any material identified during the inspection
Catch basins for NIROP Burning Grounds storm water collection	Assure catch basins are clear of debris including catch basin by Cage 19 and catch basin by Pan 8.

Table 5.4
HS-1, ES-1, ES-2, Segment Storage, Resthouse #1 and BG Ash Storage Pad
Daily Inspection Criteria
(see Figure 5-2.4)

Inspection Items	Inspection Criteria
Containers	Inspect containers for leaks and spills.

Table 5.5 ES-1 Weekly Inspection Criteria (see Figure 5-2.3)	
Inspection Items	Inspection Criteria
Telephone	Verify the telephone works properly.
Danger sign	Verify the danger sign posted on the main entrance is visible.
Building security	Verify the doors are locked.
Fire extinguisher	Verify that at least one (1) fire extinguisher is present, and access is not blocked. If the extinguisher has a pressure gauge, verify it is in the normal range; if not verify the plastic seal is in place.
Aisle space	Verify that a 24-inch aisle space is provided for all 19 inch or less diameter containers, and a 30-inch minimum aisle space for larger containers.
Container labeling	Verify all containers are marked with a tracking number and or labels are clearly visible
Storage Compatibility	Verify 1.1 and 1.3 materials are separated by a 30-inch minimum aisle space.
Containers	Visually inspect all containers in storage to ensure all containers are closed, in good condition and that no containers are leaking.

Table 5.6 ES-2 Weekly Inspection Criteria (see Figure 5-2.3)	
Inspection Items	Inspection Criteria
Telephone	Verify the telephone works properly.
Danger sign	Verify the danger sign posted on the main entrance is visible.
Building security	Verify the doors are locked.
Fire extinguisher	Verify that at least one (1) fire extinguisher is present, and access is not blocked. If the extinguisher has a pressure gauge, verify it is in the normal range; if not verify the plastic seal is in place.
Aisle space	Verify a 30-inch minimum aisle space is maintained.
Container labeling	Verify all containers are marked with a tracking number and or labels are clearly visible
Storage Compatibility	Verify 1.1 and 1.3 materials are separated by a 30-inch minimum aisle space.
Containers	Visually inspect all containers in storage to ensure all containers are closed, in good condition and that no containers are leaking.

Table 5.7 Resthouse -1 Weekly Inspection Criteria (see Figure 5-2.3)	
Inspection Items	Inspection Criteria
Telephone	Verify the telephone works properly.
Danger sign	Verify the danger sign posted on the main entrance is visible.
Building security	Verify the doors are locked.
Fire extinguisher	Verify that at least one (1) fire extinguisher is present, and access is not blocked. If the extinguisher has a pressure gauge, verify it is in the normal range; if not verify the plastic seal is in place.
Aisle space	Verify a 30-inch minimum aisle space is maintained.
Container labeling	Verify all containers are marked with a tracking number and or labels are clearly visible
Storage Compatibility	Verify 1.1 and 1.3 materials are separated by a 30-inch minimum aisle space.
Containers	Visually inspect all containers in storage to ensure all containers are closed, in good condition and that no containers are leaking.
Grounding	Verify grounding wires are in good condition. Verify that rocket motors are properly grounded.

Table 5.8 Segment Storage Weekly Inspection Criteria (see Figure 5-2.3)	
Inspection Items	Inspection Criteria
Danger sign	Verify the danger sign posted on the main entrance is visible.
Aisle space	Verify that a 24-inch aisle space is provided for all 19 inch or less diameter containers, and a 30-inch minimum aisle space for larger containers.
Container labeling	Verify all containers are marked with a tracking number and or labels are clearly visible
Storage Compatibility	Verify 1.1 and 1.3 materials are separated by a 30-inch minimum aisle space.
Containers	Visually inspect all containers in storage to ensure all containers are closed, in good condition and that no containers are leaking.
Grounding	Verify grounding wires are in good condition. Verify that rocket motors are properly grounded.

Placards	Verify trailers are properly placarded.

Table 5.9 Ash Storage Pad Weekly Inspection Criteria (see Figure 5-2.3)	
Inspection Items	Inspection Criteria
Danger sign	Verify the danger sign posted on the main entrance is visible.
Aisle space	Verify a 30-inch minimum aisle space is provided.
Container labeling	Verify the container is marked with a tracking number and or the label is clearly visible
Containers	Visually inspect container(s) to ensure all containers are closed, in good condition and that no containers are leaking. . If a gondola is in use, assure the gondola is not leaking, is not excessively dented and that the lid is securely in place.
Pad	Visually inspect the pad for cracks in need of repair.
Note: The Ash Storage Pad shares a fire extinguisher and danger sign with the NIROP Burning Grounds.	

Table 5.10 HS-1 Weekly Hazardous Waste Storage Inspection Criteria (see Figure 5-2.5)	
Inspection Items	Inspection Criteria
Lights	Verify building lights are working properly & provide adequate lighting.
Telephone	Verify the telephone works properly.
Danger sign	Verify the danger sign posted on the main entrance is visible.
Building security	Verify the doors function properly (e.g. will close to maintain building temperature and keep animals out).
Fire extinguisher	Verify three (3) fire extinguishers are present in: (1) Bldg. 8562 chemical transfer room, (2) Bldg. 8567 and (3) Bldg. 8568, and access is not blocked. If the extinguisher has a pressure gauge, verify it is in the normal range; if not verify the plastic seal is in place.
Emergency Equipment	Verify the following items are present and in good condition: • Absorbent material (5 bags) • Barricade tape (1 roll) • Boots- disposable (10 pair) • Drum repair kit (1 kit) • Coveralls – disposable (10 each) • Face shield (3 each) • Goggles (3 pair)

	• Gloves (10 pair) • Mercury spill kit (1 each) • Neutralizing media for acids (1 gallon) • Neutralizing media for bases (1 gallon) • pH paper (1 packet) • Shovel non-sparking (1 each)

Table 5.10 continued

Inspection Items	Inspection Criteria
Container marking	Verify all containers are marked with a tracking number and/or have labels clearly visible.
Aisle space	Verify that a 30-inch minimum aisle space is provided for all containers. Small containers in cabinets are exempt from this requirement.
Chemical compatibility	Verify acids, flammables and oxidizers are stored in separate containments and/or cabinets. Verify all other segregation per 49 CFR 177.848 or 173.12(e) as applicable.
Containers	Visually inspect all containers in storage to ensure no containers are leaking. Visually check inside of each small container storage cabinet for signs of spills.
Sump	Visually inspect the sumps for evidence of liquids. If liquid is found identify the source, and take corrective action as necessary to eliminate the source. Collect and properly containerize any liquids collected.

5.2.3 Frequency of Inspection

Inspections of the Bacchus Facility's equipment are conducted at a frequency sufficient to identify problems before they harm human health or the environment.

ES-1, ES-2, Segment Storage, Resthouse #1, HS-1 and the Ash Storage Pad are inspected every day, using the Hazardous Waste Daily Inspection Record (Figure 5-2.4), when the units are in active use (e.g. when wastes are being loaded or unloaded at the unit). These hazardous waste management units will, at a minimum, be inspected weekly using the Explosive Storage Building/Pad/Treatment Inspection Record (Figure 5-2.3) or the HS-1 Weekly Hazardous Storage Inspection Record (Figure 5-2.5), regardless of activity.

Every burn at the NIROP Burning Grounds will have a pre and post burn inspection. The pre-burn inspection will be conducted at least monthly if there is an extended period between burns and no pre-burn inspection has been conducted during the calendar month. The perimeter of the NIROP Burning Grounds will be inspected each calendar month. The NIROP Burning Grounds will also be inspected weekly using the Explosive Building/Pad/Treatment Inspection Record (Figure 5-2.3) to document the condition of ordnance (between first and second burns), untreated residue and unburned waste.

5.3 EMERGENCY PREPAREDNESS

5.3.1 Equipment Requirements

All hazardous waste management units and operations are equipped to prevent and minimize the potential impact of a release of hazardous waste or hazardous waste constituents which may be harmful to human health or the environment. The equipment used includes internal and external communication devices, personal protective clothing and equipment, fire fighting equipment, hand tools, spill control equipment, decontamination equipment, and other emergency equipment and materials. Emergency equipment requirements for the hazardous waste management units and the Bacchus Facility are identified and discussed in the Contingency Plan, Attachment 6 of this Permit.

5.3.2 Internal Communication

The hazardous waste management units are linked with the internal telephone system for the Bacchus Facility. All emergencies, including hazardous waste releases or spills, are reported by dialing the plant emergency phone number (extension 22222). If employees are using an external phone line then they would dial 801-251-2222 to report an emergency.

The emergency notification will include the following information:

- Callers name
- Callers location (building number and telephone number)
- Type of emergency (explosion, fire, hazardous waste release, ~~etc~~etc.)
- Extent of emergency

Phones are installed at the following locations:

- ES-1 – inside the building
- ES-2 - inside the building.
- NIROP Burning Grounds – phones on the telephone pole by main gate and in the control bunker.
- Ash Storage Pad – shares the phones available to the NIROP Burning Grounds
- Resthouse #1 – inside the building
- HS-1 – inside the building

5.3.4 External Communication

The Bacchus Facility internal telephone system described above can also be used to summon emergency assistance from local law enforcement, fire departments, and state and local emergency response teams. Telephones are available for use at or near each waste management unit as described in 5.3.2. In addition employees responding to spills and/or release of hazardous waste or hazardous waste constituents carry two-way radios or cell phones which may be used to summon emergency assistance.

ATK has agreements for fire fighting assistance at the Bacchus Facility with West Valley City and the Unified Fire Authority in the event that the Bacchus Fire Department cannot control a fire. However, due to the nature of manufacturing operations conducted at the Bacchus Facility, it is understood by the outside fire departments that the Bacchus Fire Department will escort, direct, and take charge of the overall fire fighting operation. In addition, the National Fire Protection Association (NFPA) protocol dictates that the first agency on the scene coordinates all fire fighting activities.

A good mutual working arrangement is maintained between the Bacchus Facility Security personnel both the West Valley City Police Department and the Salt Lake County Sheriff's Department. In the event additional law enforcement personnel are required, other outside police departments located within the county may be contacted. Site personnel will escort outside law enforcement personnel at all times while on the site to avoid possible dangers.

ATK staffs a clinic at the Bacchus Facility with a nurse who is capable of treating minor injuries. No specific arrangements have been made with any of the area hospitals, because it has not been deemed a necessary requirement due to the nature of the hazardous waste materials managed at the Bacchus Facility. Should it be needed, Pioneer Valley Hospital, located in West Valley City (approximately 9 minutes traveling time from the Bacchus Facility) can provide professional medical support for employees. The Bacchus Facility also has sufficient open space for a helicopter to evacuate injured personnel.

5.3.5 Emergency Equipment

All fire extinguishers on the Bacchus Facility are visually inspected for pressure, functionality and existence by the Bacchus Fire Department quarterly, and by individual building supervisors monthly. Fire extinguishers at the hazardous waste storage units are inspected at least weekly and documented on the weekly inspection form. Fire extinguishers and fire fighting equipment at the NIROP Burning Grounds is inspected prior to every burn and at least monthly if the NIROP Burning Grounds are inactive for an extended period on time. The monthly inspections conducted by building supervisors are documented on a tag attached to the fire extinguisher. Records of quarterly inspections conducted by the Bacchus Fire Department are maintained by the Bacchus Fire Department. The inspections of the hazardous management units are maintained by Bacchus Facility Environment Services.

The emergency communication system for the Bacchus Facility is tested weekly by the Bacchus Fire Department who also documents the test. The communication devices used at the hazardous waste storage units are inspected and tested weekly. The communication devices used at the NIROP Burning Grounds are inspected prior to every burn and at least monthly if the NIROP Burning Grounds are inactive for an extended period on time. The inspections of the hazardous management units are maintained by Bacchus Facility Environment Services.

5.3.6 Water for Fire Control

The location of fire hydrants at the hazardous waste facilities is described below. All fire hydrants are subject to an annual flow check by the Bacchus Fire Department.

Bacchus Facility safety procedures limit fighting fires when explosive materials are involved. The fire fighting activities at any of the hazardous waste storage or treatment facilities will involve containment only, to keep the fire from spreading to other facilities.

Water for fire control/containment is available as follows:

- ES-2 - is equipped with a deluge fire suppression system. The fire hydrant/hose combination can deliver 2430 gpm @ 20 psi

- NIROP Burning Grounds - the NFPA 13 calculation requires 178 gpm. The fire hydrant/hose combination can deliver 2430 gpm @ 20 psi.

- Ash Storage Pad - shares the fire control and containment resources described for the NIROP Burning Grounds.

- HS-1- NFPA 13 water supply requires at least 772 gpm at HS-1. The nearest hydrant (800 yards away) can provide 1081 gpm at a residual pressure of 60 psi at the hydrant, but friction losses from a long hose will lower the actual flow rate. The pressure losses will be made up through the use of two pumper trucks in series should they be needed. The nature of the operations at HS-1 make fighting a fire there unlikely (for Safety reasons), but the hydrant should provide enough water to keep a fire from spreading beyond the facilities boundary.

- ES-1- NFPA 13 requires 710 gpm for fire protection. The deluge system in ES-1 provides 790 gpm @ 95 psi and a hydrant/hose can provide an additional 2430 gpm @ 20 psi.

- RH-1 and Segment Storage do not have sprinkler systems. However, fire hydrants are located in close proximity to RH-1. In case of a fire at Segment Storage, the ATK-Bacchus Fire Department will respond to the area with a 1,250 gallon engine and two-200 gallon brush units.

5.3.7 Protection of Water Supplies

Water supplies are protected by procedures and facilities utilized at the Bacchus Facility. Spills and leaks are promptly cleaned up, potential releases are minimized by our container management practices, the design of the hazardous waste management units, run-on/run-off controls that prevent stormwater from being contaminated, and frequent inspection of all waste and hazardous material storage and handling areas.

5.3.8 Power Failure

Most hazardous waste management operations at the Bacchus Facility are not dependent upon power for continuing operations. In the event of a power failure, operations will stop until power is restored. The loss of heating in explosives waste storage areas could create a hazard where nitroglycerine-containing materials are stored or handled. In the event that heating is lost, the materials will be burned immediately or moved to another heated location.

6.0 HAZARDOUS WASTE CONTINGENCY PLAN

The Hazardous Waste Contingency Plan (HWCP) adopts the ATK Launch Systems Management Policy SC-E, "Emergency Action Planning (EAP)," which directs emergency response actions at the Bacchus Facility. The HWCP adopts those portions of the EAP that deal with general responses to fires, explosions, or releases of hazardous waste, constituents or substances as defined by R315-2 UAC or 40 CFR 303.3 in all areas of the Bacchus Facility. These general responses will be referred to as "environmental emergencies." The HWCP also contains emergency equipment lists and evacuation plans for hazardous waste management units.

6.1 GENERAL INFORMATION

The HWCP is designed to minimize the hazards to human health and the environment in the event of an uncontrolled, unplanned, sudden, or non-sudden fire, explosion, release of hazardous materials or hazardous waste to the air, soil, or surface water.

6.1.1 Site Location

The Bacchus Facility occupies approximately 10,000 acres in West Valley City and unincorporated Salt Lake County. The main gate entrance is located at approximately 5000 South on Highway 111 (8400 West). The Bacchus Facility site includes the contiguous locations commonly referred to as: Plant 1, Bacchus West, and NIROP. This plan also applies to off-site groundwater monitoring wells classified as large quantity generators.

6.1.2 Ownership

The Bacchus Facility is owned and operated by ATK Launch Systems Inc., which is owned by Alliant Techsystems Incorporated located in Minnesota. NIROP is owned by the United States Navy and operated by ATK. A large portion of Bacchus West is leased from Kennecott Utah Copper Corporation. The telephone contact for the Alliant Techsystems Corporate Environmental Offices is: (952) 351-2871. The telephone contact for the local office of ATK Launch Systems is (800) 453-9142.

6.1.3 Operations

Operations at Bacchus Facility include, but are not limited to the following:

- Production of nitroglycerin;
- Manufacture of rocket motor propellant;
- Assembly of rocket motors;
- Static testing of propellants;
- Production of composite products;
- Support, administration, and maintenance of facilities; and
- Storage of chemical and explosive hazardous wastes incidental to the manufacture of rocket motors.

Explosive and chemical hazardous wastes are generated during the manufacturing process and are treated or stored at one of the Bacchus Facility's generator storage areas or hazardous waste management units. The hazardous waste management units located on Plant 1 are: HS-1, ES-1, Segment Storage, and RH-1. The hazardous waste management units located on the NIROP Facility includes the NIROP Burning Grounds, ES-2, and the Ash Storage Pad.

In order to provide a complete description of emergency procedures for the Bacchus Facility, the treatment and storage facilities located on both the NIROP and Plant 1 facilities will be included in this application.

Hazardous waste chemicals and explosives generated and/or stored at the Bacchus Facility are managed on site at one of the hazardous waste storage areas. All hazardous waste not treated at the NIROP Burning Grounds will be shipped off-site to an approved TSDF for treatment and/or disposal, or treated on-site in accordance with R315 of the UAC.

6.1.4 Site Plan

The topographic map (Figure 2-5.12) shows the plant site layout, and the location of the regulated hazardous waste management units.

6.2 EMERGENCY COORDINATOR

The Emergency Coordinator is the ATK Fire Department's Emergency Manager. The alternate Emergency Coordinators are the ATK Fire Department Shift Supervisors. A primary or alternate Emergency Coordinator is on plant or on call at all times. In this plan, the Emergency Coordinator will be referred to as the Incident Commander (IC). The primary and alternate Emergency Coordinators or ICs are identified in the Operating Record, and can be contacted 24/7 at (801)251-2222. The information in the Operating Record will list the names of all primary and alternate ICs, addresses, and their office, home and cell phone numbers.

6.2.1 Duties and Responsibilities

The IC and the alternate IC are professional fire fighters certified by the State of Utah to no less than a Fire Fighter II level, and are trained to OSHA 29 CFR 1910.120 requirements. They have also received extensive training in responding to emergencies that could occur at the Bacchus Facility. The ATK Fire Department is a full-time professional fire service organization on the Bacchus Facility 24-hours a day 365-days per year.

The ATK Fire Department has the responsibility for initial response, site assessment, site direction and control, communications, emergency medical treatment, rescue and evacuation, and site stabilization for all emergencies at the Bacchus Facility. In an emergency, the IC is responsible for managing the emergency in accordance with established Fire Service procedures, and notifying the appropriate management personnel.

The IC and alternate ICs are trained in all aspects of the HWCP, are familiar with the operations and activities at the Bacchus Facility, the location and characteristics of all waste handling activities, the layout of the facility and have access to all applicable emergency response records at the Bacchus Facility.

6.2.2 Authorization

The IC and all of the alternate ICs are authorized to commit the equipment and all other resources necessary to implement the provisions of the HWCP.

6.3 IMPLEMENTATION

The HWCP will be implemented whenever any of the following events occur:

- A reportable release of a hazardous waste, a material which when spilled becomes a hazardous waste, constituents or substances per R315-9-1 UAC or 40 CFR Table 302.4 List of Hazardous Substances, or is listed in the Bacchus Facility Plant 1 Permit, Module 1, Condition 1.K.1 and 1.T.3;
- An unplanned fire or explosion in any manufacturing, maintenance, storage, or hazardous waste management facility;
- Accidental or unplanned ignition at the NIROP Burning Grounds;
- Accidental or unplanned grass fire associated with production, manufacturing or disposal operations or a grass fire that threatens explosive or chemical storage facilities; or
- Waste propelled or ejected out of the NIROP Burning Grounds during open burning operations.

Whenever the HWCP is implemented, ATK will submit an implementation report in accordance with Section 6.8 of this plan. Controlled fires, such as routine open burning of waste propellant at the NIROP Burning Grounds and propellant burn-rate tests conducted incidental to the manufacturing operations are not subject to the reporting requirements of Section 6.8. Operations associated with testing of propellant, routine Pit 38 operations, and process equipment decontamination will also be excluded from reporting requirements.

6.4 EMERGENCY ACTIONS

6.4.1 Emergency Reporting Procedure

Any employee who witnesses a fire, explosion, or other significant release of hazardous materials or hazardous waste to the environment will report the event by dialing extension 22222 or dialing 801-251-2222 on an external phone line, and supply the following information:

- Caller's name;
- Caller's location; and
- Type of emergency

If possible, the caller will stay by the telephone to supply additional information as needed; if safety considerations require a move to another location, the caller will move and repeat the above steps.

An emergency reported using the above procedures will result in the notification of the employees listed below:

- IC (Fire Station);
- Plant medical staff;
- Radio Dispatcher;
- Industrial Safety Manager;
- Security Manager; and
- Plant Manager

During normal working hours the employees identified above are automatically notified of an environmental emergency or contacted by the Radio Dispatcher. During off-shifts, these individuals are contacted by the IC or his/her designee.

Notification of Federal, State, and Local Authorities

If the IC determines that assistance is required from the West Valley City or Salt Lake County Unified Fire Authority, Emergency Services (911) will be contacted immediately. The Emergency Services number automatically notifies the Local Emergency Planning Committee for both West Valley City and Salt Lake County

When an environmental emergency results in the release of a reportable quantity of hazardous waste, constituents or substances, as specified in Section 6.3, the appropriate Federal and State authorities will be notified immediately. The IC may delegate the responsibility of notifying Federal and State authorities to ATK Environmental Services. The IC cannot notify ATK Environmental Services in a timely manner, the IC is responsible for making the necessary notification.

ATK Environmental Services or the IC will notify the proper authority according to the following conditions:

- For releases per the State of Utah Hazardous Waste Management Rules 315-9-1, contact the Utah State Department of Environmental Quality's 24-hour answering service emergency number: 801-536-4123 or 1-800-572-6400; and during normal business hours the Utah Division of Solid and Hazardous Waste, business number: 801-538-6170;
- For releases per 40 CFR Table 302.4 List of Hazardous Substances and Reportable Quantities or 49 CFR 172.101 Table 1- Hazardous Substances Other Than Radionuclides, contact the National Response Center 1-800-424-8802 and the State agencies listed above; and
- Contact the appropriate people for releases identified in Module 1, Condition 1.K.1 and 1.T.3 of the Bacchus Facility Plant 1 Permit.

The following information will be provided when reporting releases:

- Name, phone number, and address of responsible party or company;
- Name, title, and phone number of person reporting;
- Time and date of spill/release;
- Location of spill/release, as specific as possible;
- Kind and amount of material;
- Cause of spill/release;
- The extent of injuries, if any;
- An assessment of the actual or potential hazard to human health or the environment, when applicable;
- Waterways involved or proximity to waterways;
- Emergency action taken for containment and clean-up; and

- Other agencies contacted.

6.4.2 Identification of Hazardous Waste, Constituents or Substances

The IC will identify the hazardous wastes, constituents or substances involved, and provide an approximation of the amount of material that was released. This will be done using observation, discussing the issue with knowledgeable individuals, reviewing of records for the operation or facility, and if necessary, by chemical analysis. The IC may call upon the on-site Industrial Safety and Hygiene or Environmental Services employees to assist with identification.

If a material cannot be immediately identified by a container label, operator knowledge or another convenient method, field characteristic tests may be conducted, as needed, to identify the immediate hazards, and may include:

- pH test;
- Water reactivity;
- Ignitability;
- Oxidizer test; and
- Organic vapors.

The field characteristic testing is designed to permit safe handling of the waste, residues or spill site while samples are collected and analyzed. Samples will be collected and analyzed as required in the Waste Analysis Plan to assure proper management and disposal of the waste, residues or spill site.

6.4.3 Assessment Criteria

The IC will assess all possible threats to human health or the environment as soon as possible after an environmental emergency is reported. The purpose of the assessment is to evaluate actual and potential hazards to the employees responding to the environmental emergency, and the actual and potential hazards to off-site populations. To conduct the assessment, the IC may call upon the on-site Industrial Safety and Hygiene or Environmental Services employees to assist.

In the event of an environmental emergency, the human health and environmental assessment criteria will include the following:

- Fire or explosion hazards;
- Corrosive material hazards;
- Toxic substance hazards;
- Potential for off-site releases;
- Containment of spill;
- Water contamination;
- Air contamination; and
- Hazard isolation requirements.

6.4.4 Control Procedure Guidelines

Upon arriving at the scene the IC will identify the nature of the emergency. Standard Fire Service

protocol will be followed for each type of emergency. Assistance from West Valley City or the Salt Lake County Unified Fire Authority may be requested by the IC depending on the scope of the emergency. Injured personnel will be immediately evacuated for medical care and non-injured personnel will be removed from immediate hazard exposure at the scene of the incident. Managers of the affected area along with the General Management Team (GMT), and support personnel (e.g. health, safety, environmental, public relations, etc.) will be notified. The management of the affected area and the GMT will gather in the Emergency Operations Center to provide support and direction during the emergency. The ATK Fire Department will then secure a perimeter at a sufficient distance from the source to prevent further injury to Bacchus Facility personnel.

The ATK Fire Department will initiate containment, control or suppression activities as directed by internal procedures or standard Fire Service protocol. Because of varied and highly sensitive materials and processes within the Bacchus Facility boundaries, the IC or other designated employees will escort outside emergency response units or individuals during all on-site operations.

6.4.4.1 Fires/Explosions

In the event of a fire or explosion the ATK Fire Department will apply appropriate fire fighting procedures to prevent the spread of fire to adjoining buildings and property.

6.4.4.2 Release of Hazardous Wastes, Constituents or Substances

If an emergency involves a release of a hazardous wastes, constituents or substances, the ATK Fire Department will provide the initial response, and conduct containment activities. Environmental Services is responsible for managing the cleanup of releases of hazardous wastes, constituents, or substances after they have been contained by the ATK Fire Department.

Spills involving explosive and non-explosive hazardous wastes, constituents or substances will generally be cleaned up by production employees who work in the area where the spill occurs as long as they have adequate training and protective equipment to meet the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements.

Spills of non-explosive hazardous wastes, constituents, or substances that cannot be cleaned up by production employees will be referred to a contractor with adequate training and equipment to safely complete the job.

Spills of explosive hazardous wastes, constituents or substances will be cleaned up by Bacchus Facility employees unless a contractor has documented experience working with explosives.

6.4.4.3 Natural Disaster

The ATK Fire Department will respond to natural disasters such as earthquakes and severe weather conditions in the same manner as fires, explosions, and releases of hazardous waste, constituents or substances. Injured personnel will be treated, damaged facilities will be evaluated, releases, if applicable, will be evaluated and actions taken to minimize the scope of the emergency.

6.4.5 Prevention of Recurrence or Spread of Fires, Explosions or Releases

During an environmental emergency, the IC will take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, reoccur, or spread to other facilities.

6.4.6 Storage and Treatment of Released Material

Following an environmental emergency, the recovered waste, contaminated soil, surface water, decontamination water and all other contaminated medium may be stored on site at one of the permitted facilities. All recovered material or waste will be handled and managed as a hazardous waste unless it is determined to be non-hazardous.

6.4.7 Incompatible Waste

Incompatible wastes generated during any implementation of the HWCP will be transported to and stored at the HS-1 hazardous waste storage facility in accordance with the requirements described in the Plant 1 Hazardous Waste Storage Permit.

6.4.8 Post-Emergency Equipment Maintenance

Equipment used in an emergency response will be disposed as required by regulation, or decontaminated, visually inspected and returned to its storage location. Due to the nature of the materials used during decontamination, decontamination wastes will be managed as hazardous waste until they are characterized in accordance with Chapter 3. All supplies, listed in Tables 6.1, 6.2 and 6.3, used during an emergency response event will be replaced within 5 working days of the completing the emergency response event. The equipment listed in Table 6.4 will be replaced before operations at the NIROP Burning Grounds resume. Prior to resuming operations in the affected area, the facility owner or operator will notify the ~~Executive Secretary~~ Director or his designee at 801-538-6170 and other appropriate State and local authorities that the facility is in compliance with R315-8-4.7(h).

6.4.9 Container Spills and Leakage

Container spills and leaks will be responded to as described in Section 6.4.4.2,"Release of Hazardous Wastes, Constituents, or Substances." The protocol for responding to container spills and leaks may include:

(1) Identify the contents of the container;
(2) Move the container so the leak is above the liquid level;
(3) Apply a temporary seal to the leak using putty or a wooden plug; and
(4) Overpack the drum or pump the contents to a new container.

Spilled materials will be absorbed, neutralized or pumped as required and the area impacted by the spill will be decontaminated. Absorbent and cleanup materials, including disposable equipment, will be collected for disposal in accordance with the applicable waste management rules.

6.4.10 Open Burning/Open Detonation Emergency

An emergency involving an open burn or detonation at an explosive manufacturing, product or waste handling facility, or at an explosive waste treatment facility requires an immediate response from the operator of the unit or facility. Safety of personnel is always the primary concern.

Potential emergency circumstances include, but are not limited to the following: (a) the unplanned initiation of wastes on a burn pan; (b) explosions; (c) fire in or near one of these facilities; or (d) a natural disaster.

The operator of the unit or facility will immediately report unplanned initiation or other fire through the plant emergency phone number. Immediate actions will be taken to remove injured personnel from the area, but only when it is safe to enter the area. Fire blankets, chemical fire extinguishers, or water supplied by hydrants or hoses are available for extinguishing burning clothing. First-aid should be administered to any injured persons prior to the arrival of the ATK Fire Department. In no instance will attempts be made to extinguish burning materials on a burn pan or at any of the other explosive facilities.

The NIROP Burning Grounds are located outside the 100-year flood plain of Coon Creek. ATK has installed diversion ditches and berms around the perimeter of the NIROP Burning Grounds to manage and divert floodwater away from the NIROP Burning Grounds. If the Bacchus Facility should become immersed in floodwater, operations will cease until floodwaters have receded, the area is cleared and cleaned, and the IC has released the site for use.

6.4.11 Review and Revision of Plan

ATK will review the HWCP for the Bacchus Facility annually and, if necessary, amend the HWCP. The HWCP will also be amended whenever any of the following conditions exist:

- The HWCP fails in an emergency;
- The permit is revised;
- There is a significant changes in the facility's design, operations, construction, and maintenance;
- Changes in emergency equipment are made; and
- Hazardous Waste Management regulations are amended with regard to contingency planning.

6.5 EMERGENCY EQUIPMENT

Each of the hazardous waste management units has emergency response equipment, which is described in Tables 6.1 through 6.4. Where appropriate, the equipment capabilities are detailed. The emergency response equipment is stored at the location indicated on the Tables. All of this emergency equipment can be transported and used at any location as required. Emergency response equipment located at the Fire Department (Building 8228) will be identified in the Operating Record. A physical description and outline of capabilities will be provided upon request.

Emergency equipment inspection frequency and requirements are described in Chapter 5, "Procedures to Prevent Hazards." The Maintenance Department conducts preventative maintenance inspections, quarterly on sprinkler and deluge systems in hazardous waste management areas. Fire hydrants are located strategically throughout the plant. The ATK Fire Department personnel tests fire hydrants annually to ensure they are in proper working order.

TABLE 6.1 EMERGENCY RESPONSE EQUIPMENT LOCATED AT HS-1	
Physical Description	**Outline of Capabilities**
Absorbent material	Material for absorbing liquids
Barricade tape	Barricade marker for designating exclusion zone
Boots (disposable)	Chemical resistant over boots
Drum repair kit	Assorted devices including plugs, screws, dowels and tape for temporary repairs to leaking drums
Coveralls (disposable)	All-purpose coveralls that repel most liquids and particulates from incidental contact; for level C and level D response
Face shield	Provides face protection against incidental contact from chemical splashes (2)
Fire extinguisher	3 Hand-held, ABC-class extinguishing agent
Goggles	Eye protection complying with ANSI Z87.1-19898 requirements
Gloves (chemical protective)	Gloves manufactured from various types of chemical resistant material which may include neoprene, viton, nitrile, leather, Kevlar mesh, PVC or equivalent
Mercury spill kit	Contains various devices to absorb or aspirate mercury
Neutralizing media (for acids)	Commercial neutralizing and absorbing media
Neutralizing media (for bases)	Commercial neutralizing absorbing media
pH paper	Provides a quick and accurate determination of acid/base; measure pH from 0-14
Shovel (non-sparking)	Non-sparking shovel for cleaning up flammable materials
Telephone	Explosion-proof telephone with a push button dial.

TABLE 6.2 EMERGENCY RESPONSE EQUIPMENT LOCATED AT ES-1 AND ES-2	
Physical Description	**Outline of Capabilities**
Telephone	Explosion-proof telephone with a push button dial.
Fire extinguisher	1 Hand-held, ABC-class extinguisher

Decontamination and cleanup equipment from Table 6.1 will be transported to ES-1 or ES-2 as required.

TABLE 6.3 EMERGENCY RESPONSE EQUIPMENT LOCATED AT RH-1	
Physical Description	**Outline of Capabilities**
Telephone	Explosion-proof telephone with a push button dial
Fire Extinguisher	1 Hand-held, ABC-class extinguisher

Decontamination and cleanup equipment from Table 6.1 will be transported to RH-1 as required.

TABLE 6.4. EMERGENCY RESPONSE EQUIPMENT LOCATED AT THE NIROP BURNING GROUNDS	
Physical Description	**Outline of Capabilities**
Fire blankets	MSA, 62 in. x 82 in. flame retardant wool blanket stored in a metal case or equivalent (3)
Fire extinguisher	1 Hand-held, ABC-class extinguisher
Telephone	Explosion-proof telephone with a push button dial
Stretcher	MSA, basket type litter with wire netting reinforced with iron braces or equivalent (1)

Decontamination and cleanup equipment from Table 6.1 will be transported to the NIROP Burning Grounds, as required.

6.6 COORDINATION AGREEMENTS

Agreements for fire fighting assistance are maintained with West Valley City, the Salt Lake County Unified Fire Authority and the ATK Fire Department. The Battalion Chiefs from the assisting fire departments will act as liaisons between the IC and the assisting fire departments. The assisting fire departments will report to the appropriate security gate and will wait for an escort to the emergency scene.

ATK maintains a good working arrangement between its Security Management personnel, West Valley City Police, and the Salt Lake County Sheriff's Departments. If additional law enforcement personnel are required, their assistance will be requested. Bacchus Facility personnel will escort outside law enforcement personnel at all times to avoid possible dangers due to the nature of our operations.

A copy of the HWCP will be submitted to the Salt Lake County Local Emergency Planning Commission (LEPC), West Valley City LEPC, West Valley City Fire Department, Salt Lake County Unified Fire Authority and Pioneer Valley Hospital. The Salt Lake County Sheriff's Department and West Valley City Police Department have both requested that emergency information be communicated and coordinated through their respective LEPC.

Salt Lake County LEPC has jurisdiction for an off-site release from the Bacchus West portion of Bacchus Facility, and West Valley City LEPC has jurisdiction for an off-site release from the remainder of the Bacchus Facility. The Bacchus Facility will notify the 911 operator if the off-site release requires LEPC response. If LEPC response is requested, the appropriate fire department will then become the IC for off-site operations, and will direct city or county personnel.

6.7 EVACUATION PLAN

The emergency evacuation plan is implemented for each hazardous waste management unit in the event of an emergency. ATK has an evacuation plan for each hazardous waste management unit. Employees evacuate a building if the fire alarm sounds or if they are verbally instructed to do so. Once outside, employees assemble at a predetermined meeting area away from the affected building and account for all employees assigned to the affected building. The evacuation routes and assembly areas for HS-1, NIROP Burning Grounds and the Ash Storage Pad, ES-1, ES-2, Segment Storage, and RH-1 are shown on Figures 6.7-1 through 6.7-6, respectively.

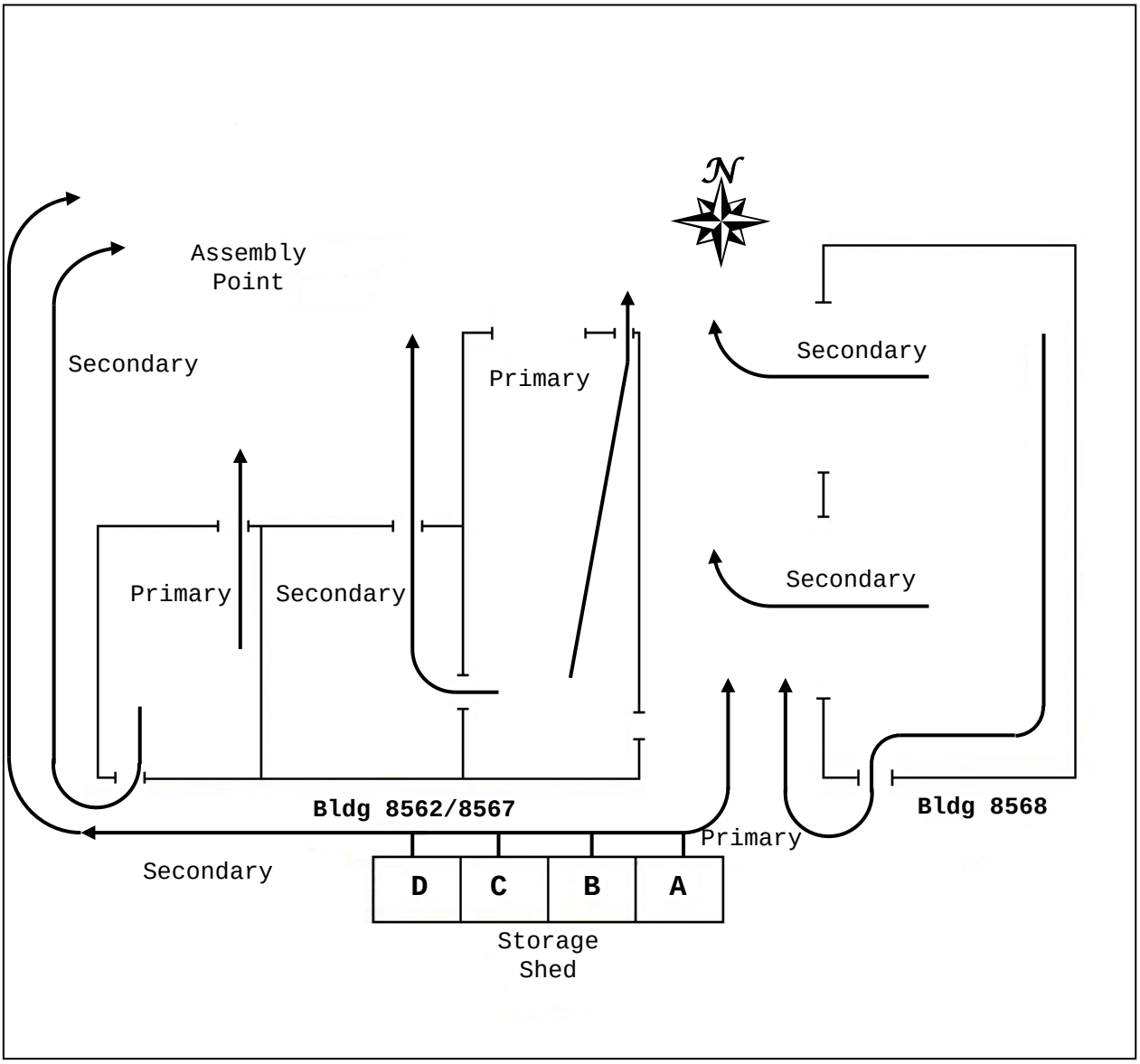


Figure 6.7-1 HS-1 Evacuation Plan

Figure 6.7-1 HS-1 Evacuation Plan

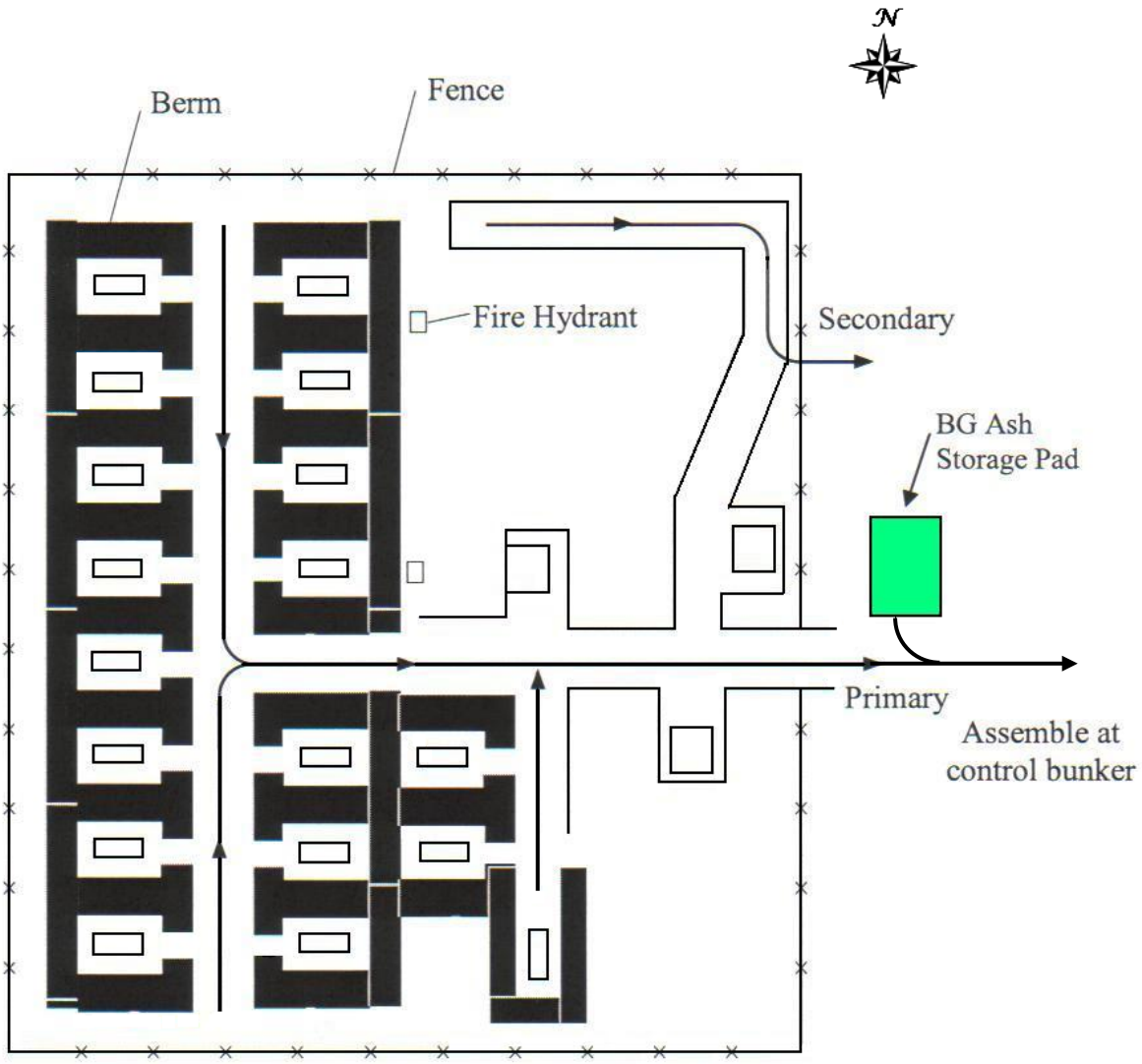


Figure 6.7-2. NIROP Burning Grounds and Ash Storage Pad Evacuation Plan

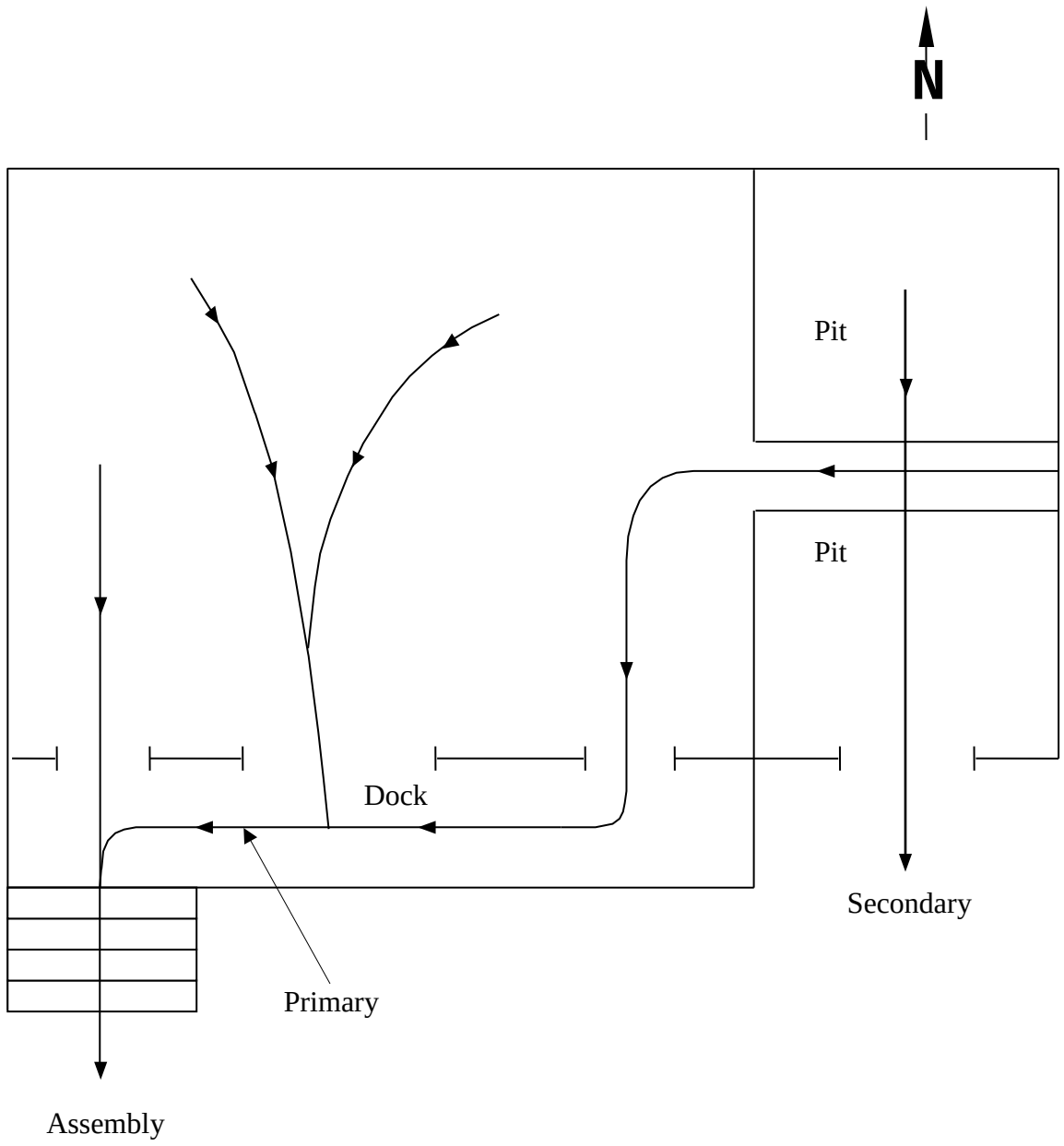


Figure 6.7-3. ES-1 Evacuation Plan

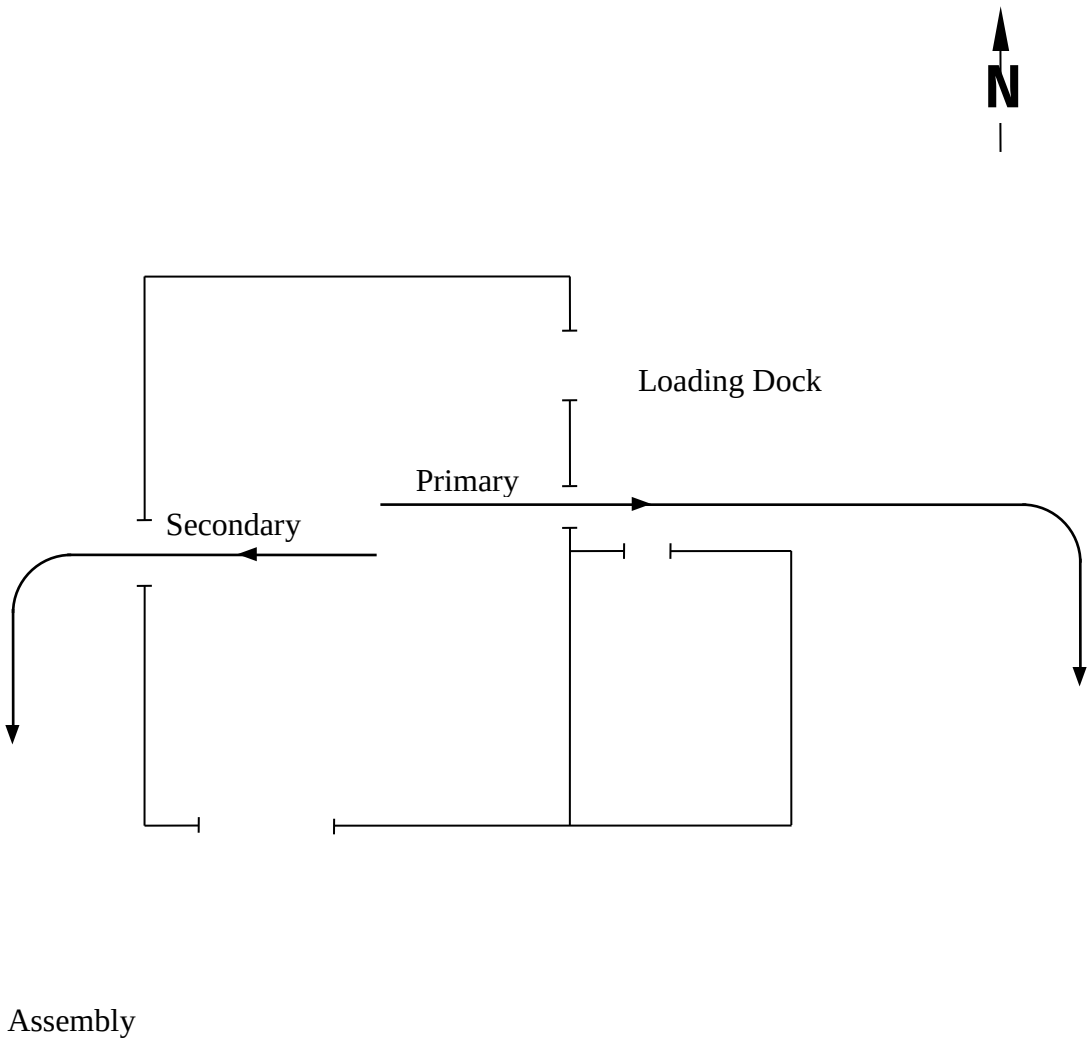


Figure 6.7-4. ES-2 Evacuation Plan

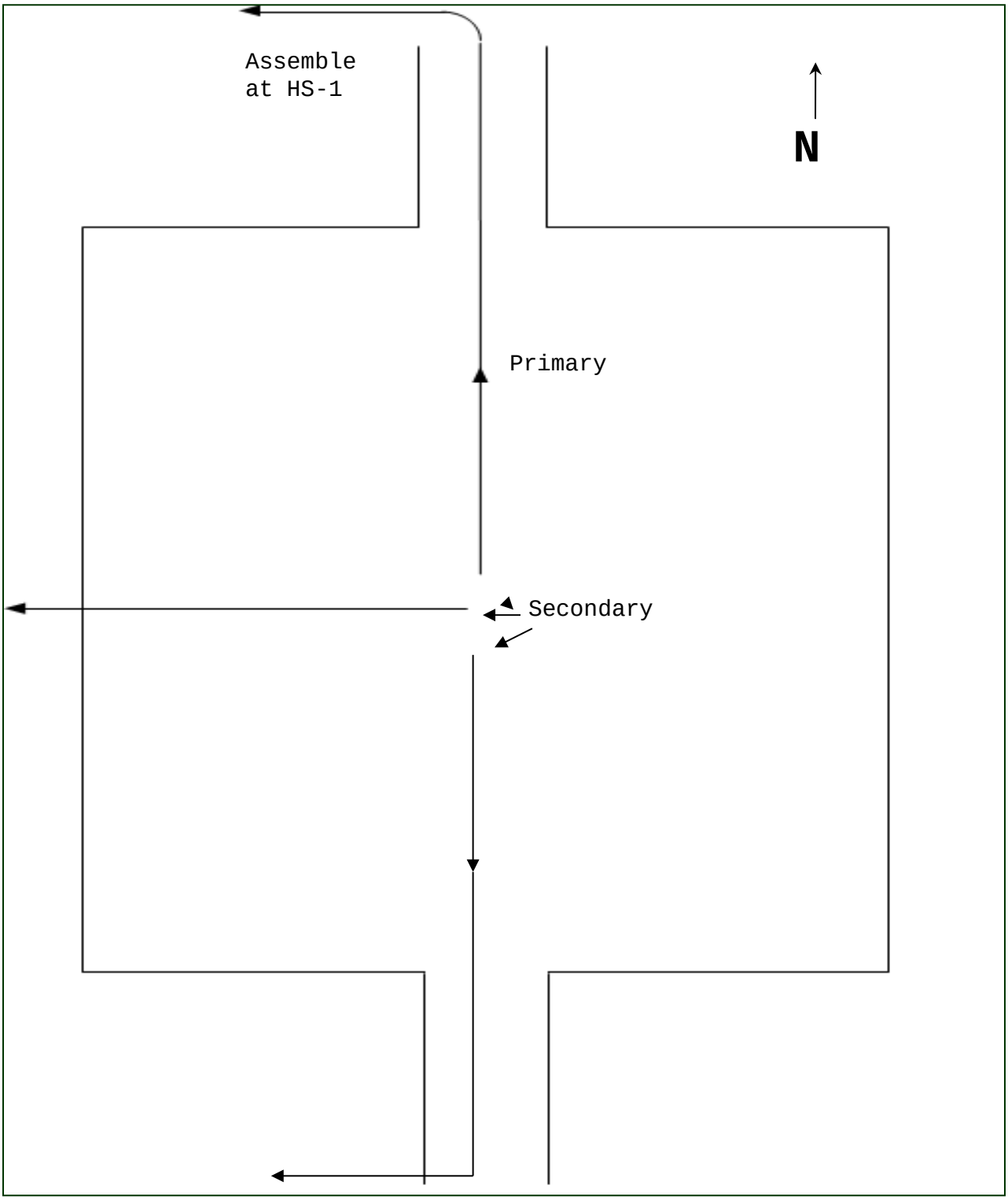


Figure 6.7-5. Segment Storage Pad Evacuation Plan

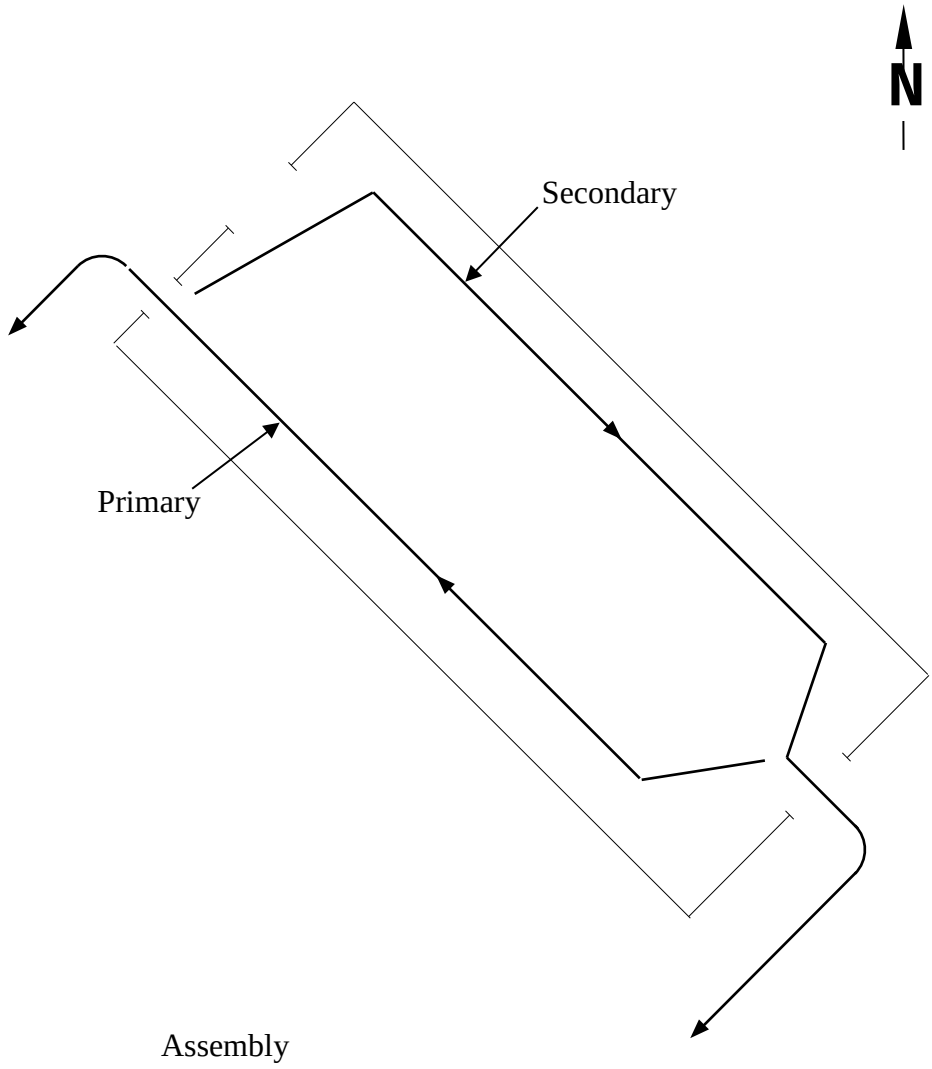


Figure 6.7-6. RH-1 Evacuation Plan

6.8 REQUIRED REPORTS

All implementation of the HWCP will be recorded in the operating record, for the Bacchus Facility and a written report will be submitted as required in Section 6.3 within 15 days of an occurrence of an environmental emergency that requires reporting. The report will contain the following information:

- Name, address, and telephone number of the owner, operator, and facility;
- Date of incident;
- Time of incident;
- Type of incident;
- Name of all materials involved;
- Quantity of materials involved;
- Extent of injuries (if any);
- Assessment of actual or potential hazards to human health or the environment;
- Estimated quantity of recovered material; and
- Arrangements for disposition of recovered material.

A copy of the report will always be sent to the ~~Executive Secretary~~ Director of the Utah Solid and Hazardous Waste Control Board, in addition to other agencies requiring the report.

7.0 PERSONNEL TRAINING

This training program has been developed for employees who generate or manage hazardous wastes. The hazardous waste training program includes both classroom instruction, and individual study of operating procedures and on-the-job training designed to ensure that employees and operators are trained in how to properly manage hazardous waste and respond to environmental emergencies at the Bacchus Facility. The training program includes introductory training programs, continuing training programs, and a computerized system that documents training completed by each employee.

7.1 Training Program Outline

The purpose of the program is to train Bacchus Facility employees to perform their duties in a way that ensures compliance with all applicable regulations. There are five groups of employees defined in Section 7.1.2 included in this training program. All required training will be documented. This program described in this chapter identifies the introductory and annual refresher training that will be provided to the respective groups.

7.1.1 Training Director

The Training Director for the Bacchus Facility is the Manager of Environmental Compliance. ATK will assure that the Training Director has the necessary knowledge, training and experience to oversee training program for the Bacchus Facility. It is the Training Director's responsibility to audit training records and ensure compliance with the training plan. The Training Director will review and update the training program to ensure that it meets all requirements of R315-8-2.7 of the UAC and 29 CFR 1910.120.

7.1.2 Training Requirements

Employees included in the hazardous waste training program have been placed into five main groups which are identified in Table 7-1. ATK will maintain a list that identifies all of the employees in groups 2, 3A, 3B and 4 in accordance with the requirements of Section 7.3. Group 1 employees will be identified using a list or organizational charts. These lists or organizational charts will include sufficient detail so that a third party can determine if the employee belongs in Group 1, 2, 3A, 3B or 4 job title and description. See the Bacchus Facility organization charts for details, which are available upon request at the Bacchus Facility. Table 7.1 identifies the job title and job description for each of the groups.

Group 1 employees generate hazardous waste. This group includes the majority of the manufacturing, maintenance and support personnel at the facility. Their training is titled "Waste Generator Training" and is specific to the basic rules that apply to hazardous waste generation.

Group 2 employees include the following job titles:

- "Environmental Operator." Their primary function is to transport hazardous waste from the generation areas to hazardous waste storage areas. They also provide the manual labor at hazardous waste storage facilities, and the NIROP Burning Grounds.

- "Operations Team Supervisors" or "Operations Team Managers". Their primary function is to provide either first or second line supervision for Environmental Operators.

Group 3 employees include the following job titles:

- Group 3A employees include the following job title: "Environmental Engineer & OB Support" personnel. Their primary function is to provide technical, regulatory and management support for hazardous waste management activities at the Bacchus Facility Plant 1and NIROP facilities, and the treatment activities at the NIROP Burning Grounds.
- Group 3B employees include the following job titles: "Environmental Engineers" and "Environmental Managers." Their primary function of the environmental engineers is to provide Provides technical and regulatory support for all on-site environmental activities associated with the Bacchus Facility Plant 1 and NIROP operations. The environmental managers are tasked with supervising the environmental programs at the Bacchus Facility Plant 1 and NIROP operations and supervising the Group 3 and 3A employees assigned to those operations.

Group 4 employees are on scene incident commanders and members ~~of the~~of the ATK Fire Department. Their primary function is to provide the initial response for fires and chemical releases. No Group 4 employee will be the primary initial responder to a fire or chemical release, or act as the Incident Commander during an emergency situation until ATK confirms that they are a certified professional fire fighter and before the employee has completed his initial training.

The training program has been designed to meet the personnel training requirements of R315-8-2.7 of the UAC. The Waste Generator Training will be provided to Group 1, 2, 3A and 3B employees. In addition, Group 2, 3A and 3B employees will successfully complete Hazardous Waste Operations and Emergency Response (HAZWOPER) training, which at a minimum will be in accordance with 29 CFR 1910.120, that addresses general safety and health requirements and hazardous material emergency response procedures. The specifics regarding the Group 4 training requirement are described in Section 7.1.7.

Group 1, 2, 3A and 3B employees will complete their initial training requirements within 6 months of starting employment in any of the work groups identified above and in Table 7.1. Group 4 employees must complete initial training requirement before they assume the responsibilities of that group. Whenever an employee moves to a different group, the employee will complete the required initial training within 6 months of starting in new position. All Group 1, 2, 3A, 3B and 4 employees will receive refresher training annually. The annual training will be completed within 12-months of when the employee completed their initial training.

Table 7.1 Training Groups		
Group	**Job Title**	**Job Description**
1	Operator	Employees within manufacturing, maintenance & test areas who generate hazardous waste incidental to their normal work activities.
2	Environmental Operator	Transports waste from generation areas to hazardous waste storage areas. Provides labor at all hazardous waste management facilities including storage areas and open burning.
2	Operations Team Supervisor	Provides first line supervision for Environmental Operators during all activities.
2	Operations Team Manager	Provides second line supervisor for Environmental Operators and Operation Team Supervisors during all activities.
3A	Environmental Engineer & OB support	Provides technical and regulatory support for all on-site environmental activities and treatment activities at the NIROP Burning Ground
3B	Environmental Engineer	Provides technical and regulatory support for all on-site environmental activities.
3B	Environmental Manager	Supervises environmental programs and the engineers assigned to them.
4	On Scene Incident Commander	ATK Fire Department employees who assume control of the incident scene during a Hazardous Waste Contingency Plan emergency.

7.1.3 Training Methods

ATK has a formal training program. Courses are taught in a formal classroom setting, online or by reviewing a written document. Courses are conducted by an ATK instructor, an outside instructor, by someone who has special expertise in the subject being taught or by independent study. The Training Director will review and assess the qualification of all trainers before they train any employees. ATK will maintain a record of all trainers and their qualifications in the facility's operation record.

ATK provides employees with on-the-job training and independent study by reviewing procedures or written materials specific to the work being done. Due to the safety hazards associated with the work at the Bacchus Facility all employees will complete their initial training before being permitted to work unsupervised in an explosive production area or a hazardous waste management area. All training is documented using a computerized tracking system. Successful completion of training is monitored by the Training Director.

Group 2 and 3A employees are trained in accordance with the procedures described in ATK procedure document 21000GV0001 "Burning Propellant at NIROP Burning Grounds", an

internal confidential document. This document is managed by the Bacchus Facility Production Control group in accordance with internal procedure OP-43 "Bacchus Manufacturing Documentation Control" and revisions require written authorization from the Environmental, Operations and Safety departments. Group 2 and 3A employees are trained to new revisions of this procedure within 30 days of issuance using the training system described in Section 7.

7.1.4 Waste Generator Training

Waste Generator Training is required for all Group 1and Group 2 employees, and is provided using Bacchus Facility specific operating procedures. Group 1 employees do not participate in emergency response efforts as defined in 29 CFR 1910.120(a)(3), nor do they work in operations defined in 29 CFR 1910.120(a) and are not required to have HAZWOPER training. Annual training is provided using area-specific waste management procedures. The initial training and annual refresher training are identical, and require approximately one hour to complete. The course contents and a description of each course are provided in Table 7.2 and in addition all employees receive Emergency Action Awareness training.

Table 7.2
Hazardous Waste Generator Training

Title/Training Documentation	Content	Applicable Employees
LS BA Waste, Explosive	Establishes procedures for packaging and labeling explosive waste in manufacturing areas	Employees who generate propellant and explosive waste and their supervisors
LS BA Waste, Non-Explosive	Establishes procedures for packaging and labeling non-explosive waste in manufacturing areas	Employees and their supervisors who generate chemical waste
LS BA Facilities & Maintenance Environmental Requirements	Establishes environmental requirements for Facilities & Maintenance employees	Facilities & Maintenance employees and their supervisors who generate hazardous waste

7.1.5 RCRA Training

The RCRA training program has been designed to meet the Personnel Training requirements of R315-8-2.7 of the UAC for all Group 2, 3A and 3B employees. The purpose of the training is to ensure that the employees who manage hazardous waste are trained to perform their duties in a manner that ensures compliance with the operating conditions of the permit. The RCRA Training will teach Group 2, 3A and 3B employees the appropriate and applicable hazardous waste management and treatment procedures, including instruction in the implementation of emergency procedures that ensure that these employees will be able to respond effectively to emergencies. In addition, this training will include, at a minimum, procedures for the inspection, use, repair and

replacement of the Bacchus Facility's emergency response and monitoring equipment, the proper response to fires or explosions, response to groundwater contamination incidents, and shutdown or evacuation of operations. The RCRA Training is administered through a combination of classroom and on-the-job training. The course content and description of each subject is provided in Table 7.3 and Table 7.4.

Table 7.3 describes the initial and annual RCRA Training that Group 2 employees will receive, and Table 7.4 describes the initial and annual RCRA Training that Group 3A and 3B employees will receive. Group 2, 3A and 3B employees will receive their initial and annual update training in accordance with the schedule described in Section 7.1.2.

Table 7.3
RCRA Training – Group 2 Employees
Training Documentation: RCRA Training

Title	Content
Permit Requirements for Storage of Hazardous Waste	Provides a description of the permit and inspection requirements for the hazardous waste storage and treatment facilities to operate in accordance with regulatory requirements.
Emergency Action Training	Provides the requirements for emergency communication, reporting and responding to emergencies that could occur at the facility.
Hazardous Waste Contingency Plan	Reviews the current content of the Hazardous Waste Contingency Plan.
Department of Transportation Requirements for Transporting Hazardous Waste	Provides a review of Department of Transportation requirements associated with hazardous waste shipments.
Requirements for Generators of Explosive Waste	Identifies requirements for generators of explosive waste.
Requirements for Generators of Non-Explosive Waste	Identifies requirements for generators of non-explosive waste.
Environmental Requirements for Facility and Maintenance Operations	Identifies environmental requirements specific to Bacchus Facility operations and maintenance.
Storing Chemical Wastes	Identifies requirements for storing chemical wastes at HS-1 and the Ash Storage Pad.
Inspection Requirements	Identifies inspection requirements for permitted storage facilities.
Hazard Communication	Provides OSHA required hazard communication information specific for employees working at hazardous waste storage and treatment facilities.
Responding to	Identifies the procedures to safely clean up a spill at HS-1 and

Chemical/Hazardous Waste Spills	the Ash Storage Pad including contamination control, personal protective equipment requirements and decontamination requirements.
Hazardous Waste Sampling	Teaches techniques for sampling hazardous waste.
Preparing Drums of Waste for Shipment Off-Site	Identifies requirements for shipping hazardous waste off-site.

Table 7.3 continued

Title	**Content**
Storing Explosive Waste	Identifies requirements for storing waste explosives at: ES-1, ES-2, Resthouse 1, Segment Storage, the NG Remover Shed, and Buildings 32E, 31 and 45A.
Portable Fire Extinguisher Training	Teaches fire safety principles and demonstrates the inspection, use and care of portable fire extinguishers.
Picking Up Chemical Waste Material	Operating instructions for collecting and transporting chemical waste on-site.
Picking Up Chemical Waste Material	On-the-Job training – observe and perform the task.
Slum Pick-Up By Environmental Operation	Operating instructions for collecting and transporting explosive waste on-site.
Slum Pick-Up By Environmental Operations	On-the-Job training for Group 2 operations employees only.
Crushing Empty Drums	Operating instructions for crushing drums.
Crushing Empty Drums	On-the-Job training – observe and perform the task.
Operating a Wastewater Truck	Operating instructions for collecting and transporting wastewater on-site
Operating a Wastewater Truck	On-the-Job training – observe and perform the task.
Preparing Explosive Waste for Off-Site Shipment	Operating instructions for preparing explosive waste for off-site shipments.
Preparing Explosive Waste for Off-Site Shipment	On-the-Job training – observe and perform the task.

Table 7.4 Group 3A and 3B RCRA Training - Group 3A and 3B Employees Training Documentation: RCRA Training	
Title	**Content**
Permit Requirements for Storage of Hazardous Waste	Provides a description of the permit and inspection requirements for the hazardous waste storage and treatment facilities to operate in accordance with regulatory requirements.
Emergency Action Training	Provides the requirements for emergency communication, reporting and responding to emergencies that could occur at the facility.
Hazardous Waste Contingency Plan	Reviews the current content of the Hazardous Waste Contingency Plan.

Table 7.4 continued

Title	**Content**
Department of Transportation Requirements for Transporting Hazardous Waste	Provides a review of Department of Transportation requirements associated with hazardous waste shipments.
Requirements for Generators of Explosive Waste	Identifies requirements for generators of explosive waste.
Requirements for Generators of Non-Explosive Waste	Identifies requirements for generators of non-explosive waste.
Environmental Requirements for Facility and Maintenance Operations	Identifies environmental requirements specific to facility and maintenance operations.
Storing Chemical Wastes	Identifies requirements for storing chemical wastes at HS-1 and the Ash Storage Pad.
Inspection Requirements	Identifies inspection requirements for permitted storage facilities.
Hazard Communication	Provides OSHA required hazard communication information specific for employees working at hazardous waste storage and treatment facilities.
Responding to Chemical/Hazardous Waste Spills	Identifies the procedures to safely clean up a spill at HS-1 and the Ash Storage Pad including contamination control, personal protective equipment requirements and decontamination requirements.
Hazardous Waste Sampling	Teaches techniques for sampling hazardous waste.
Preparing Drums of Waste for Shipment Off-Site	Identifies requirements for shipping waste off-site.

Picking Up chemical Waste Material	Operating instructions for collecting and transporting chemical waste on-site.
Storing Explosive Waste	Operating instructions for storing waste explosives at: ES-1, ES-2, Resthouse 1, Segment Storage, the NG Remover Shed, and Buildings 32E, 31 and 45A.
Slum Pick-Up By Environmental Operations	Operating instructions for collecting and transporting explosive waste on-site.
Preparing Explosive Waste for Off-Site Shipment	Operating instruction for preparing explosive waste for off-site shipment.
Portable Fire Extinguisher Training	Teaches fire safety principles and demonstrates the inspection, use and care of portable fire extinguishers.

7.1.6 HAZWOPER Training

Group 2 employees are defined in 29 CFR 1910.120(a)(iv) as operators involving hazardous waste operations that are conducted at treatment, storage and disposal facilities. This group will complete a 24-hour HAZWOPER training course as part of their initial training requirements as identified in 1910.120(p). All Group 3A and 3B employees will complete, at a minimum, a 40-hour HAZWOPER Training course as part of their initial training requirements in accordance with 29 CFR 1910.120(e). The 40-hour course will be provided using a commercial course provider. Equivalent training as defined in 29 CFR 1910.120(e)(9) for Group 2, 3A and 3B employees may be used where it can be documented that work experience and/or training has resulted in training equivalent to the training required in 1910.120(e)(1) through (e)(4). The information in Table 7.5 describes 8-hour HAZWOPER refresher course that will all Group 2, 3A and 3B employees will complete annually. The annual 8-hour HAZWOPER refresher course for Group 2, 3A and 3B employees will be provided on-site by the Training Director or a qualified designee. The course content and a description of each subject is provided in Table 7.5.

Table 7.5
Group 2, 3A & 3B
8-Hour HAZWOPER/RCRA Annual Refresher Course
Training Documentation: HAZWOPER and RCRA Annual

Title	Content
Permit requirements for Storage of Hazardous Waste	Review the hazardous waste permit requirements to operate in accordance with regulatory requirements.
Emergency Action Training	Review the requirements for emergency communication, reporting and responding to emergencies that could occur at the facility.
Hazardous Waste Contingency Plan	Review the current content of the Hazardous Waste Contingency Plan
Department of Transportation Requirements for Transporting Hazardous Waste	Review the Department of Transportation requirements associated with hazardous waste shipments.

Hazard Communication	Review the hazard communicate program.
Chemical Waste Storage Requirements	Review the requirements for storing non-explosive wastes at HS-1 and the Ash Storage Pad.
Explosive Waste Generator Requirements	Review the requirements for generators of explosive wastes.
Non-Explosive Waste Generator Requirements	Review the requirements for generators of non-explosive wastes.
Environmental Requirements for Facilities and Maintenance Operations	Review the requirements specific to facility and maintenance activities.
Cleaning up Chemical /Hazardous Waste Spills	Review the protocol for cleaning up chemical spills.
Portable Fire Extinguisher Training	Teaches fire safety principles and demonstrates the inspection, use and care of portable fire extinguishers.

7.1.7 On Scene Incident Commander

All Group 4 employees are on scene incident commanders and members of the ATK Fire Department. ~~.~~The employee must be a current professional fire fighter certified by the Utah Fire & Rescue Academy to no less than a Fire Fighter II level which satisfies the 29 CFR 1910.120(q)(6)(v) initial training requirements. In addition, Group 4 employees will all receive site specific training regarding the hazard communication system, the Contingency Plan and site specific dangers.

Group 4 will receive their annual training on-site by completing the material outlined in Table 7.6 This training includes specific information on storage and disposal facility requirements, the Hazardous Waste Contingency Plan, the emergency response notification system, response to fire, explosive and medical emergencies, and response to chemical spills which includes ground water contamination incidents.

Table 7.6
Group 4
On Scene Incident Commander Training
Training Documentation: On Scene Incident Commander Training

Title	Content
Treatment and Storage Facility Summary	Provides a summary of capacities and requirements for treatment and storage facilities
Hazardous Waste Contingency Plan	The emergency plan for hazardous waste storage and treatment areas
Response to Emergency Calls	Provides instructions on responding to emergency calls.
Response to Fire and Explosive Emergencies	Provides instruction on responding to fire and explosive emergencies
Emergency Response and Victim Transport	Provides instructions for emergency response and victim transportation.

Emergency Response to Hazardous Material Spills or Leaks	Provides instructions for emergency response to hazardous material spills or leaks including mitigation of impacts to human health or the environment.
Requesting Assistance From Outside Agencies	Provides instruction on requesting assistance from outside agencies

7.2 PROCEDURES FOR EMERGENCY EQUIPMENT

The RCRA and HAZWOPER training program instruct employees in the correct use of hazardous waste emergency and monitoring equipment. This equipment includes spill response hardware and personal protective equipment. Group 2, 3A, 3B and 4 employees are responsible for the inspection, use, repair and replacement of the facility's emergency response and monitoring equipment,

7.2.1 Emergency Communication Procedures and Alarm System

The RCRA training program prescribes (see Chapters 5 and 6) the methods for the use and maintenance of external and internal communication equipment and the correct procedures for controlling communications with other agencies, departments, and individuals. Employee orientation, notices, and other procedures detail the use of the Emergency Reporting System which is activated when an employee dials the Emergency/Disaster extension number 22222 on the Bacchus Facility phone system or 801-251-2222 to initiate emergency actions. The system immediately notifies internal company organizations.

7.2.2 Response to Fires and Explosions

The ATK Fire Department is trained to respond to situations involving explosives or highly flammable materials. The Contingency Plan details emergency response actions for fire and other emergencies that involve hazardous wastes, constituents or substances that could contaminate the environment.

7.2.3 Response to Potential Groundwater Contamination, Incidents and Procedures for Containing, Controlling, and Investigating Spills

The ATK Fire Department is trained to respond to all releases to the environment. Each release is immediately contained and managed. These actions minimize the potential for groundwater contamination. Records are maintained to document all releases to the environment.

7.3 ASSURANCE OF TRAINING

All completed training, including on-the-job training, classroom instructions, independent study, and training courses provided by off-site and commercial providers from off-site courses and commercial courses will be documented at the department level, and entered into the training documentation system for all Group 1, 2, 3A, 3B and 4 employees at the Bacchus Facility. The Training Director will review the records in the Training Documentation System on a monthly basis to ensure each Group 1, 2, 3A, 3B and 4 employee is up-to-date on all of their required training.

Training records for all current employees will be maintained until closure of the Bacchus Facility. Training records for former employees will be maintained for at least three years from the date the employee last worked at the Bacchus Facility.

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8.0 CLOSURE PLAN

The closure plans described in this section of the permit ~~application~~ identifies how ATK-Bacchus will close the regulated units located on Plant 1. Plans have been developed for the closure of the following hazardous waste storage units: HS-1, ES-1, Segment Storage, and RH-1.

8.1 CLOSURE PLANS AND CLOSURE COSTS ESTIMATES

In developing closure plans for the hazardous waste storage units, ATK-Bacchus used the requirements of R315-8-7 and R315-8-9.9 UAC. R315-8-7 UAC incorporates by reference the requirements of 40 CFR 264 Subparts G. The closure cost~~s~~ estimate~~sd~~ are to be submitted to the Director for review and approval as required by the Permit and shall be ~~were~~ made in accordance with R315-8-8 UAC, which incorporates by reference the requirements of 40 CFR 264 Subpart H. The closure cost estimates shall be maintained in the operating record.

ATK-Bacchus assumed, for the purposes of estimating the closure costs, that all of the hazardous waste management units were filled to their respective maximum waste storage capacities as identified in the RCRA Part A Permit Application for Plant 1. If storage capacities change, the Permit will be modified and a revised cost estimate will be sent for review and approval.

Rocket motors stored at ATK-Bacchus that are classified as "hazardous waste," will be transported to an off-site TSDF for treatment and disposal. On occasion, it may be necessary to treat a hazardous waste rocket motor on-site due to transportation restrictions.

8.2 CLEAN-UP APPROACH

The Part A and Permit for Plant 1 only authorized ATK-Bacchus to store hazardous waste. The units identified in the Part A have not been used for treatment or disposal of hazardous waste. The source of any contamination occurring in these containment buildings should be limited to spills onto concrete or asphalt surfaces during the operational life of these units. The storage units will be cleaned using steam and/or high-pressure water until surfaces are decontaminated. This method has been routinely used at ATK-Bacchus to clean various areas as a part of normal plant maintenance. Wash water will be collected using permanent berms and sumps, or if necessary temporary berms to prevent contaminating the area surrounding the units. Past experience indicates that contaminant levels in the cleanup wash water will be minimal, and after characterization the water can meet discharge limits for a POTW or UPDES discharge permit. Therefore, it is not anticipated that the wastewater generated during closure will require special handling. The wastewater will be collected according to ATK-Bacchus practices, it will then be stored, tested, and disposed. If it is determined that the wastewater cannot meet discharge limits, it will be characterized and disposed of in accordance with applicable rules and regulations.

Because of the hazardous nature of the explosive materials on site and complex plant safety procedures, facility personnel will be involved in closure activities more than would be the case at other types of facilities. For cost-estimating purposes, it was assumed that a third-party consulting firm will be employed to clean the explosive storage units after explosive materials have been removed, conduct verification sampling, and write the final closure reports.

Once the hazardous waste storage units have been decontaminated and verified clean, ATK-Bacchus will submit a written report to the ~~Executive Secretary~~Director requesting concurrence on the closure certification. Before any unit is determined to be clean closed, ATK-Bacchus must have concurrence from the ~~Executive Secretary~~Director of the Utah Division of Solid and Hazardous Waste. The ~~F~~final disposition of any unit that has been clean closed will be the prerogative of ATK-Bacchus or the current proprietor of the facility. If a unit ~~can not~~cannot be clean closed ATK-Bacchus will develop an appropriate and applicable post-closure care mechanism.

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8.3 CLEAN CLOSURE CRITERIA

For the purposes of estimating closure costs, it is assumed that all of the regulated units will be clean closed. Clean closure can be achieved ~~by cleaning the units to background conditions or~~ by meeting the clean closure equivalency as defined in R315-101-6(c)(1) UAC. All closures will assess real and potential impacts to human and ecological exposures.

The Regional Screening Levels for Contaminants of Concern at Superfund Sites, November 2013, (RSLs) is now used by USEPA Region 9 and will be used to screen the data under a residential land-use scenario. RSL goals will be established prior to implementing any of the closure plans in this section. ATK will use the most current screening levels published by USEPA Region 9, or they can establish site-specific risk-based clean closure goals in accordance with R315-101-5.2 UAC.

Comment [HZ1]: Need review

~~Preliminary remediation goals can be established prior to implementing any of the closure plans in this section. ATK-Bacchus may use the screening levels published by USEPA Region III "Risk-Based Concentrations (RBC) and the USEPA Region IX Preliminary Remediation Goals (PRG), or they can establish site-specific risk-based clean closure goals in accordance with R315-101-5.2 UAC.~~

8.4 VERIFICATION SAMPLING APPROACH

To determine whether each hazardous waste management unit has been successfully decontaminated and cleaned up, ATK-Bacchus will use the following techniques:

- Core samples or subsurface soil samples will be collected from the floors in buildings where liquid hazardous wastes were stored, and from locations where porous flooring materials are present. Sample locations will be biased toward visible staining or other indication of potential contamination, such as the source of the material, coloration, or floor integrity. Cores obtained from the floors will have the top 1-inch (unless staining or discoloration indicates contamination below that depth) sawed off and pulverized in the laboratory before being analyzed for the contaminants of concern. Material used for samples will not exceed 1-inch maximum in depth. If additional material is needed for analysis, additional cores will be collected by co-locating additional cores near the original sample point. In situ samples will always be discrete samples and not composited.
- Wipe samples will be collected from the wall surfaces in the buildings when applicable. The sample will be collected by wiping the surface of a designated area using a template with a piece of solvent moistened gauze to remove any remaining contaminants. The wipe will be placed in to a glass vial for storage and transport. Samples will be handled according to applicable sample preservation and chain-of-custody requirements.
- Final rinse water samples will be collected in buildings where non-liquid hazardous wastes were stored and from all non-porous surfaces. The rinse water samples will be analyzed and evaluated to determine whether the exposed surfaces of the buildings have been adequately decontaminated.
- Soil samples will be collected where the potential existed for hazardous waste materials to be transposed to soil areas surrounding the designated building area. Samples will be collected in areas with the greatest potential to have received waste materials, visible staining of soil, or other indication of contamination. Each sample collected for volatile organic compound analysis will be a discrete sample ~~and not composited with samples from other locations~~. However, the samples collected for non-volatile compounds may be composited within the sample interval. Analytical results will be compared with closure performance standard presented for the specific hazardous waste management unit.

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- Prior to implementing the closure plans described in this section of the application, ATK-Bacchus will develop Data Quality Objectives (DQOs) for all verification samples. The DQOs will be submitted to the ~~Executive Secretary~~Director for approval prior to implementing any of the closure plans.
- The unit will be considered clean if the verification samples show that all contaminant concentration levels are less than the ~~background concentrations or a~~ risk-based clean closure equivalency as defined in R315-101-6(c)(1) UAC.
- Sampling and handling will be conducted according to the requirement and protocols established by the USEPA and the UDEQ.
- All samples will be processed and analyzed by a Utah Certified Laboratory in accordance with R444-14-3(2) UAC. Analytical and extraction methods to be used are shown in Table 8-1.

TABLE 8-1
ANALYTICAL AND EXTRACTION METHODS

Parameter	Analytical Procedure	Extraction Procedure
Volatiles	SW-846; 8260B	SW-846; 5030B(W), 5035S
Semi-Volatiles	SW-846; 8270C	SW-846; 3510C(W), 3550B(S)
RCRA Metals	SW-846; 6010B	SW-846; 3005A(W), 3050B(S)
Mercury	SW-846; 7470A/7471A	SW-846; 7470A(W), 7471A(S)
Explosives	SW-846; 8330 Modified	SW-846; 8330 Modified
Perchlorate	EPA 314.0	EPA 314.0

8.5 HS-1

HS-1 is a waste storage unit where non-explosive solid (non-liquid), semi-solid, and liquid hazardous and non-hazardous wastes are stored. This unit is used to store and consolidate waste prior to off-site shipment to an authorized TSDF. HS-1 (Figure 2-2.2) consists of Buildings 8562, 8567, 8568, and Sheds A-D located south of the main structure. HS-1 has a combined storage capacity of 15,900 gallons. Capacity for each area is listed in Table 8-2 below.

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TABLE 8-2
BUILDING STORAGE CAPACITIES

Building	Capacity (gallons)
8562	4900
8567	1200
8568	9350
Sheds A-D	450

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8.5.1 Site Description

Indoor concrete floor surfaces are sealed with a commercial sealant, and the concrete joints are caulked with silicone. The sealant provides ease of cleanup and mitigates leaks or spills from migrating into the concrete pad.

Building 8562 (Figure 2-2.4) is an enclosed structure, built on a monolithic cement pad surrounded by a minimum 6-inch curb on all sides. The inside dimensions of this building are 21 ft x 52 ft. The floor slopes to the north and east. Any liquids released during the operational life of this building will be contained and collected along the north and east side of the building. The average depth along the north wall is 0.30 ft. The average depth along the east wall is 0.25 ft. To conservatively determine the containment capacity the size of the containment was estimated based on a depth of 0.25 ft along both the north and east wall. A width of 21 ft along the north wall and 35 ft along the east wall and will cover approximately one-half the room, using a line that bisects the room running from the northwest corner to a point about 35 ft along the east wall. The 35 ft distance along the east wall is based on the floor elevation where liquids could start to flow through the door into the work area of Building 8657. The containment volume for this area is calculated to hold about 700 gallons.

Building 8567 (Figure 2-2.4) is divided by a wall into two separate rooms. The west half of the building is office space, and the east half is a work area. Wastes are only stored in the eastern half, work area, of this building. The entire building is equipped with heat and lighting.

The floor in the work area of Building 8567 was constructed using a monolithic cast concrete slab with a 6-inch curb on the south and north walls. The inside dimensions of the work area is 24 ft x 20 ft. The main concern is to ensure that liquids will be contained and not released through the north personnel door**.** The area adjacent to the personnel door is approximately 0.12 ft higher than the surrounding floor area. The floor forms the secondary containment in the area west of the personnel door with a liquid collection trench forming the low point of the containment. The dimensions of the containment area are approximately 12 ft x 24 ft x 0.12 ft. The volume of this area can be approximated by calculating one-half the volume of the rectangle or 17 ft^3. The room also has a floor trench that is an architectural feature from the previous occupancy of the building. The average dimensions of the trench are 0.4 ft deep, 0.5 ft wide, and 24 ft long for a volume of about 5 ft^3. The total volume contained in the trench and area west of the personnel door is about 22 ft^3, or 165 gallons

Building 8568 (Figures 2-2.7 and 2-2.8) is an enclosed wood-framed structure fitted with two large overhead doors. It measures 30 ft wide x 60 ft long. This building has a concrete floor with no secondary containment and is primarily used for the storage of non-liquid wastes. Liquid wastes stored in this building will be stored on pallets that provide secondary-containment.

The four wood-framed sheds each have approximate dimensions of 10 ft x 10 ft, and are located south of Building 8562 (Figure 2-2.2). Actual dimensions vary slightly for each shed. The sheds are designated A, B, C, and D. Shed A and B are used to store hazardous waste. Shed C is used to store supplies. Shed D is a mechanical room for the facility. The sheds have a concrete floor with no secondary containment.

Shed A is used to store unique wastes such as gas cylinders and containers that may off-gas, such as water wet aluminum powder. Waste materials are stored on shelves, in a cabinet, or on a containment pallet. Shed B contains cabinets for storing small containers. The cabinets are constructed of steel with dimensions 40 in. x 40 in. x 74 in. The storage cabinets are self-contained, with a 13-gallon capacity liquid sump. No secondary containment is required in this shed. These small container cabinets are identical to cabinets in Building 8562. Sheds C and D have not been used to store hazardous wastes or materials.

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8.5.2 HS-1 Closure Plan

The closure plan detailed in this section was developed with the assumption that HS-1 can and will be clean closed. The plan describes the procedures that will be used to clean, decontaminate, and verify closure of all applicable structures and equipment at HS-1, and how closure standards will be established. Any change or amendment to this plan will be done in accordance with R315-8-7 UAC and 40 CFR 264.112(c).

8.5.3 Closure Performance Standard

This unit will be clean closed by ~~either~~ cleaning the unit until it meets ~~background conditions or by meeting a~~the clean closure equivalency as defined in R315-101-6(c)(1) UAC. After closure, HS-1 may be used for other purposes, or may be demolished. Post-closure care for HS-1 is not anticipated.

8.5.4 Operational History of Spills or Releases at HS-1

At the time this plan was written there was no history of any major spills occurring at HS-1. There is a record of minor spills, less than one gallon, of waste material. Whenever a spill occurs, the waste material was absorbed immediately and disposed according to the applicable regulations. Prior to closure the operational history of HS-1 will be reviewed to determine when and where spills have occurred. It is anticipated that all spills or releases will have been contained within the secondary containment, however, prior to closure ATK-Bacchus will examine the condition of the floor and secondary containment and identify any cracks or gaps and determine whether the closure plan needs to be amended.

8.5.5 Maximum Waste Inventory at HS-1

Wastes stored in HS-1 include: acids, bases, lab waste, organic compounds, paints, solvents, resins, used oils, and other miscellaneous materials. Based on the operating history for this unit, the maximum inventory of hazardous waste documented on-site is the maximum capacity shown in Table 8-~~2~~3.

TABLE 8-3
SUMMARY OF STORAGE CAPACITIES

Storage Unit	Part A Capacity
HS-1 (8562)	4900 gal
HS-1 (8567)	1200 gal
HS-1 (8568)	9350 gal
HS-1 (Sheds A-D)	450 gal
ES-1	20,000 lb.
Segment Storage	75,000 lb.
RH-1	150,000 lb.

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8.5.6 Inventory Removal, Disposal, and Decontamination of Structure/Equipment

All hazardous wastes stored at the time of closure will be shipped to an approved TSDF. Only authorized transporters and approved TSDFs facilities will be used. This activity will be completed within 90 days after receiving the final volume of hazardous waste. Container storage areas, equipment, structure, etc., will be decontaminated by steam cleaning and/or washing with high pressure water and scrub brushes. An environmentally safe detergent or degreaser may be used. Decontamination water will be squeegeed into the concrete sumps at the edge of the building. The decontamination process is expected to generate approximately 500 gallons of wastewater and residue. Structures and equipment requiring decontamination include but are not limited to the following:

- Building floors;
- Walls where splashing may have caused contamination;
- Miscellaneous equipment permanently attached to the facility; and,
- Building drains and sumps.

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Decontamination water will be collected from the sumps or bermed areas of the floors using a wet/dry vacuum, mop buckets, or transfer pumps into drums or containers, or will be removed by a vacuum truck. The sumps will be cleaned using the above-described techniques and the additional decontamination water will be collected.

8.5.7 Verification and QA/QC Samples

Verification samples will be collected separately from each storage and waste handling building at HS-1. The storage and waste handling areas are: the chemical handling room in Building 8567, storage areas in Building 8562 and Building 8568, and Sheds A and B.

From previous experience, contaminants in the decontamination wastewater are expected to be very low. Wash water will be collected and, if possible, sent to a local POTW following approval or verification that discharge limits can be met.

To demonstrate adequate decontamination, verification samples will be collected from each of the storage and handling areas. Concrete core samples will be collected at two locations in both Buildings 8562 and 8567. Sample locations for the cores will be decided based on the discussion in Section 8.4. Final rinse samples of the floors and walls will be collected from the floor and/or sumps of all HS-1 buildings. If the area does not have a sump, then samples will be collected from bermed areas of the floor designed to catch wash and rinse waters. One final rinse verification sample will be collected from each building at HS-1. Wipe samples will be collected from two walls in Buildings 8562 and 8567. Samples will be collected according to the procedure described in Section 8.4.

In addition to the verification samples identified in Table 8-~~3~~4 (found in the *Tables* section following this chapter), QA/QC samples will be collected ~~during each day of verification sampling~~as necessary. During closure activities QA/QC samples~~field and trip blanks will be collected daily, duplicate samples~~ will be collected according to the bullets below~~.: The following number and type of QA/QC samples will be collected:~~

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- A field blank filled with de-ionized water will be exposed during sampling and analyzed for accidental or incidental contamination.
- A trip blank ~~bottle~~ sample will be collected by filling the bottle ~~filled~~ with de-ionized water and carried with the decontamination/sampling crew to HS-1 on days where a sample-of-record will be collected for volatile organic compound analyses. The trip blank bottles shall be handled identically to the handling methods used for sample-of-record collection, transported within the same cooler, and subjected to the same analyses.
- One (1) blind duplicate sample will be collected for each ten (10) verification samples collected (rounded up to the next greatest multiple of 10).

Table 8-~~3~~4 ~~(found in the *Tables* section following this chapter)~~ identifies the number of verification and QA/QC samples that will be collected form each storage and handling building at HS-1. Samples will be properly labeled, sealed, and sent to a certified analytical laboratory for testing. Samples will be handled under USEPA chain-of-custody and sample preservation protocols. No residue or contamination is expected to remain on or in the structures and equipment following the decontamination process. Structures and permanent fixtures may be kept for future use. There is no intention to break up and dispose of the concrete pads or catch basins. Prior to re-use of the HS-1 facility, ATK-Bacchus will have the structural integrity of HS-1 examined by a competent structural engineer to determine whether it has been compromised. The engineer will document the results of the examination.

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8.5.8 Closure Report and Certification

Upon completion of the closure a written report will be provided to the ~~Executive Secretary~~Director certifying that the closure was completed in accordance with the plan. The report will include a summary of the operational history of HS-1, copies of all analytical results generated during closure operations, copies of the QA/QC data, data validation reports, copies of manifests that accompanied off-site shipments, characterization of decontamination water/residue, documentation that the closure of HS-1 met the performance standard identified in Section 8.5.3, a closure certification, and a copy of the structural integrity examination report. A certification of closure according to 40 CFR 264.115 will be submitted by registered mail to the ~~Executive Secretary~~Director within 60 days of the completion of the final closure.

8.5.9 Schedule for Closure

Final closure is expected to be initiated within 30 days of receipt of the final volume of hazardous wastes. If more time is required, ATK-Bacchus will submit a request to the ~~Executive Secretary~~Director. All hazardous wastes will be removed or treated within 90 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever comes latest. Final closure activities will be completed within 180 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever is later.

8.5.10 Post-Closure Care

The closure plan described above anticipates that HS-1 will be clean closed and will not require post-closure care. If at the conclusion of the closure activities it is determined that any part of HS-1 ~~can not~~cannot be clean closed, ATK-Bacchus will develop an appropriate and applicable post-closure care plan for all areas of this unit that ~~can not~~cannot be clean closed. Any proposal for post-closure care will be developed in accordance with R315-8-7 and 8 UAC and 40 CFR 264, Subpart G and H, and submitted to the ~~Executive Secretary~~Director for approval.

8.5.11 Closure Cost Estimate

The cost estimate for the closure of HS-1 ~~is~~will be maintained in the operating record.~~presented in Table 8-4~~.

8.6 ES-1

ES-1 is a hazardous waste storage unit that is used by ATK-Bacchus for the storage of propellant and explosive wastes.

8.6.1 Site Description

ES-1 is a totally enclosed concrete and steel structure, with a lead-lined floor. The building was originally constructed in 1961 for storing and weighing dry propellant ingredients. Except for the south-facing dock area, the sides are bunkered with gravel and sand. The earthen berm is held in place by wooden beams on the south side. The purpose of the berm is to minimize the potential hazard to facilities, equipment, and personnel in the event of a detonation within the building. ES-1 has the capacity to store up to 20,000 pounds of explosives or flammable solids. Figure 2-2.10 provides a floor plan and a typical storage configuration. The building is shown in Figure 2-2.9.

ES-1 has two storage areas that are separated for the storage of non-compatible containerized wastes. The floor is electrically-conductive for the continuous grounding of personnel. The floor is elevated to truck-bed height to facilitate loading and unloading operations. The building is protected by a deluge sprinkler system. Fire symbols appropriate for the greatest explosive waste hazard are clearly posted on the exterior of the building.

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8.6.2 ES-1 Closure Plan

The closure plan detailed in this section was developed with the assumption that ES-1 will be clean closed. The plan describes the procedures that will be used to clean, decontaminate, and verify closure of all applicable structures and equipment at ES-1, and how the closure standard will be established. Any change or amendment to this plan will be done in accordance with R315-8-7 UAC and 40 CFR 264.112(c).

8.6.3 Closure Performance Standard

This unit will be clean closed by ~~either~~ cleaning the unit until it meets ~~background conditions or by meeting a~~the clean closure equivalency as defined in R315-101-6(c)(1) UAC. After closure, ES-1 may be used for other purposes, or may be demolished. Post-closure care for ES-1 is not anticipated.

8.6.4 Operational History of Spills or Releases at ES-1

At the time this plan was written there was no history of any major spills occurring at ES-1. Whenever a minor spill occurred, it was immediately cleaned up. Prior to closure the operational history of ES-1 will be reviewed to determine when and where spills have occurred. Prior to implementation of the closure plan, the floor in ES-1 will be evaluated for cracks and gaps. If cracks or gaps exist, the closure plan will be amended to assess the potential migration of contaminants through the floor of ES-1.

8.6.5 Maximum Waste Inventory at ES-1

Based on our operating history, the maximum inventory of hazardous waste documented on-site was equal to capacity, approximately 20,000 pounds. The principal waste stored at ES-1 has been HMX, staged for transportation and disposal at an off-site TSDF. Prior to implementing the closure plan, the operational history will be reviewed to determine what reactive hazardous waste or constituents ATK-Bacchus stored at the ES-1 during its operational life.

8.6.6 Inventory Removal, Disposal, and Decontamination of Structure/Equipment

All waste explosives in storage at the time of closure will be shipped to an approved TSDF or taken to the NIROP Burning Grounds for treatment. If wastes are treated at the NIROP Burning Grounds all treatment residues will be collected and transported off-site to an approved TSDF. The storage areas, structure, and all equipment will be cleaned and decontaminated by steam cleaning and/or washing with high pressure water and scrub brushes. A temporary berm will be constructed using plastic and railroad ties or a similar structure to contain wash water. Wash water will be collected and transferred into 55-gallon drums or similar vessel. An environmentally safe detergent, if necessary, may be used. The decontamination process is expected to generate approximately 500 gallons of wastewater and residue.

The building may be subdivided into more than one area for cleaning purposes. Structures and equipment requiring decontamination include but are limited to the following:

- The concrete floor in the building;
- Walls that may have been exposed to contamination; and
- Miscellaneous equipment permanently attached to the facility.

All material used to construct the temporary berm will be collected, characterized, and discarded according to applicable and appropriate waste management rules.

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8.6.7 Verification and QA/QC Samples

Decontamination and verification samples will be collected from both storage areas at ES-1. From experience, contaminants in the decontamination wastewater are expected to be very low. This wastewater will be sent to a local POTW following approval or verification that discharge limits can be met.

To demonstrate adequate decontamination, verification samples will be collected from each of the storage areas. Final rinse samples of the floors and walls will be collected. Wipe samples will be collected from two walls in each storage area. Samples will be collected according to the procedure described in Section 8.4.

In addition to the clean closure verification samples identified in Table 8-~~5~~5, the following QA/QC samples will be collected during each day of verification sampling:

- A field blank filled with de-ionized water will be exposed during sampling, and then analyzed to detect accidental or incidental contamination, during each day of sampling.
- One (1) blind duplicate sample will be collected for each ten (10) verification samples collected (rounded up to the next greatest multiple of 10).

Table 8-~~5~~5 identifies the number of verification and QA/QC samples that ATK-Bacchus expects to collect during the closure of ES-1. Samples will be properly labeled, sealed, and sent to a Utah Certified Laboratory for testing. Samples will be handled under USEPA chain-of-custody and sample preservation protocols. No residue or contamination is expected to remain on or in the structures and equipment following the decontamination process. Structures and permanent fixtures may be kept for future use. There is no intention to break up and dispose of the building as part of the closure.

8.6.8 Closure Report and Certification

Upon completion of the closure, a report will be provided to the ~~Executive Secretary~~Director certifying that the closure was completed in accordance with the plan. The report will include a summary of the operational history of ES-1, copies of the analytical results, copies of the QA/QC data, data validation report(s), copies of manifests that accompanied off-site shipments of wastes, characterization of decontamination water/residue, documentation that the closure of ES-1 met the performance standard identified in Section 8.6.3, and a closure certification. A certification of closure according to 40 CFR 264.115 will be submitted by registered mail to the ~~Executive Secretary~~Director within 60 days of the completion of the final closure.

8.6.9 Schedule for Closure

Final closure is expected to be initiated within 30 days of receipt of the final volume of hazardous wastes. If more time is required, ATK-Bacchus will submit a request to the ~~Executive Secretary~~Director. All hazardous wastes will be removed or treated within 90 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever occurs last. Final closure activities will be completed within 180 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever is later.

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8.6.10 Post-Closure Care

The closure plan described above anticipates that ES-1 will be clean closed and will not require post-closure care. If at the conclusion of the closure activities it is determined that ES-1 ~~can not~~cannot be clean closed, ATK-Bacchus will develop an appropriate and applicable post-closure care plan for all areas of this unit that ~~can not~~cannot be clean closed. Any proposal for post-closure care will be developed in accordance with R315-8-7 and 8 UAC and 40 CFR 264, Subpart G and H, and submitted to the ~~Executive Secretary~~Director for approval.

8.6.11 Closure Cost Estimate

The cost estimate for the closure of ES-1 ~~is~~ will be maintained in the operating record.~~presented in Table 8-6.~~

8.7 SEGMENT STORAGE

Segment Storage is a hazardous waste storage unit constructed for the storage of large rocket motors and containers of Class 1.3 explosives. Segment Storage is used for the storage of Class 1.3 explosive, explosive ingredients, and explosive wastes.

8.7.1 Site Description

The facility is located just to the southeast of HS-1 in Plant 1, and consists of an asphalt pad 100 ft x 75 ft; a total of 7,500 square feet. The facility is protected from lightning by a "tent" system (a telephone pole at each corner of the pad connected with a conductive wire). The pad and “tent” system are shown in Figure 2-2.11. The storage capacity for Segment Storage is 75,000 pounds; equivalent to one large rocket motor segment (e.g., GEM-60). For closure cost purposes it is assumed that one large rocket motor would be onsite at the time of closure.

8.7.2 Segment Storage Closure Plan

The closure plan detailed in this section was developed with the assumption that Segment Storage will be clean closed. The plan describes the procedures that will be used to clean decontaminate, and verify closure of all applicable structures and equipment at Segment Storage, and how the closure standard will be established. Any change or amendment to this plan will be done in accordance with R315-8-7 UAC and 40 CFR 264.112(c).

8.7.3 Closure Performance Standard

The closure criteria for the pad and surrounding soil will be to clean close by ~~either~~ cleaning the unit and surrounding soil until they meet ~~background conditions, or by meeting a~~the clean closure equivalency as defined in R315-101-6(c)(1) UAC. If the pad can be clean closed, the pad may be used for other purposes, or may be demolished. No specific Segment Storage post-closure monitoring is planned.

8.7.4 Operational History of Spills or Releases at Segment Storage

At the time this plan was written there was no history of any major spills occurring at Segment Storage. Prior to closure the operational history of Segment Storage will be reviewed to determine when and where any spills have occurred. Contaminated soil is not expected; however, limited sampling will be conducted to verify that it does not exist.

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8.7.5 Maximum Waste Inventory at Segment Storage

Segment Storage has a storage capacity of 75,000 pounds of Class 1.3 propellant or explosives. The pad has been used to stage rocket motors, ammonium perchlorate, and other solid and hazardous wastes and products. Prior to implementing the closure plan the operational history will be reviewed to determine what reactive hazardous waste or constituents ATK-Bacchus stored at the Segment Storage during its operational life.

8.7.6 Inventory Removal and Decontamination of Pad

All hazardous wastes in storage at the time of closure will be taken to an approved TSDF for treatment and disposal. The pad will be cleaned to remove any visible dirt or debris present during closure. The pad will be swept, either by hand or using a commercial street sweeper, then pressure washed. Wash water will be collected and, if possible, sent to a local POTW following approval or verification that discharge limits have been met. It is assumed that the pad will be reused after closure for a purpose other than the storage of hazardous waste. A cost estimate for pad removal is not included in the closure costs. Soil contamination is not expected; however, if it is identified, the soil will be excavated, stabilized, and sent to an approved waste landfill for disposal. If soils contamination is identified, ATK-Bacchus will submit a supplemental closure plan to the ~~Executive Secretary~~Director designed to assess magnitude and extent of the contamination. This supplemental plan will be submitted within 60 days of determining that soil contamination has occurred.

8.7.7 Verification and QA/QC Samples

To demonstrate adequate decontamination, verification samples will be collected from the storage pad and specific soil locations. Core samples of the asphalt will be collected at two locations. Locations for the cores will be decided based on the procedures described in Section 8.4. A final rinse sample from the pad cleaning will be collected. A total of four soil samples will be collected from the area adjacent to the pad, in the general direction of water runoff, i.e., to the north and east. In addition to the verification samples, QA/QC samples will be collected during each day of verification sampling. During closure activities field blanks will be collected daily and duplicate samples will also be collected according to the bullet below:

- A field blank filled with de-ionized water will be exposed during sampling and analyzed for accidental or incidental contamination.
- One (1) blind duplicate verification sample will be collected for each ten (10) verification samples collected (rounded up to the next greatest multiple of 10).

Table 8-~~7~~6 identifies the number of verification and QA/QC samples ATK-Bacchus will collect during the closure of Segment Storage. Samples will be properly labeled, sealed, and sent to a Utah Certified Laboratory for testing. Samples will be handled under USEPA chain-of-custody and sample preservation protocols. No residue or contamination is expected to remain on the pad or any of the equipment associated with Segment Storage after the cleaning process is complete, therefore, the pad may be kept for future use. There is no intention to break up and dispose of the pad as part of the closure.

8.7.8 Closure Report and Certification

Upon completion of the closure a report will be submitted to the ~~Executive Secretary~~Director certifying that the closure was accomplished in accordance with the approved plan. The report will include a summary of the operational history of Segment Storage, copies of the analytical results, copies of the QA/QC data, data validation report(s), copies of any manifests that accompanied off-site shipments of wastes, characterization of all cleanup waste or residues, documentation that the

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closure of Segment Storage met the performance standard identified in Section 8.7.3, and a closure certification. A certification of closure according to 40 CFR 264.115 will be submitted by registered mail to the ~~Executive Secretary~~Director within 60 days of the completion of the final closure.

8.7.9 Schedule for Closure

Final closure is expected to be initiated within 30 days of receipt of the final volume of hazardous wastes. If more time is required, ATK-Bacchus will make a request to the ~~Executive Secretary~~Director. All hazardous wastes will be removed or treated within 90 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever comes latest. Final closure activities will be completed within 180 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever comes later.

8.7.10 Post-Closure Care

The closure plan described above anticipates that Segment Storage will be clean closed and will not require post-closure care. If at the conclusion of the closure activities it is determined that Segment Storage ~~can not~~cannot be clean closed, ATK-Bacchus will develop an appropriate and applicable post-closure care plan for this unit. Any proposal for post-closure care will be developed in accordance with R315-8-7 and 8 UAC and 40 CFR 264, Subpart G and H, and submitted to the ~~Executive Secretary~~Director for approval.

8.7.11 Closure Cost Estimate

The cost estimate for the closure of Segment Storage ~~is~~ will be maintained in the operating record. ~~presented in Table 8-8~~.

8.8 RH-1

RH-1 is a hazardous waste storage unit used for the storage of waste rocket motors and explosives. RH-1 is permitted for 150,000 pounds of hazardous/explosive waste.

8.8.1 Site Description

RH-1 is a wood-framed, earthen-covered structure similar to ES-1. The northwest-facing front of the building is not earthen covered and consists of two large double doors (11 ft x 37 ft). A set of rails enter the building through these doors enabling rocket motors to be brought in on rail dollies. Figure 2-2.13 is a schematic of the building showing the location of the doors and the building dimensions. The area permitted for storage of hazardous wastes is only a portion of the building. The hazardous wastes include waste rocket motors, explosive ingredients, large sections of motors, and smaller pieces of propellant on pallets or in wooden boxes. The exterior of the building is shown in Figure 2-2.12. The interior of the building is shown in Figure 2-2.14.

8.8.2 RH-1 Closure Plan

The closure plan detailed in this section was developed with the assumption that RH-1 will be clean closed. The plan describes the procedures that will be used to clean decontaminate, and verify closure of all applicable structures and equipment at RH-1, and how the closure standard will be established. Any change or amendment to this plan will be done in accordance with R315-8-7 UAC and 40 CFR 264.112(c).

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8.8.3 Closure Performance Standard

RH-1 will be clean closed by either cleaning the unit until it meets ~~background conditions or by meeting a~~the clean closure equivalency as defined in R315-101-6(c)(1) UAC. After closure, RH-1 may be used for other purposes, or may be demolished. Post-closure care for RH-1 is not anticipated.

8.8.4 Operational History of Spills or Releases at RH-1

At the time this plan was written there was no history of any major releases occurring at RH-1. Liquid wastes were not stored at RH-1. Therefore, whenever a minor spill occurred, it was in a solid form and immediately cleaned up. Prior to closure the operational history of RH-1 will be reviewed to determine when and where spills have occurred. It is anticipated that any contamination will be confined to the interior of RH-1, however, prior to closure ATK-Bacchus will examine the condition of the floor and identify any cracks or gaps and determine whether the closure plan needs to be amended.

8.8.5 Maximum Waste Inventory at RH-1

Total capacity (by weight) would be the equivalent of two GEM-60 rocket motors. It will be assumed that these motors will not be the property of the U.S government.

8.8.6 Inventory Removal, Disposal, and Decontamination of Structure/Equipment

Waste rocket motors will be transported to an approved TSDF for treatment and disposal. As part of the closure activities the floor of RH-1 will be inspected prior to initiating decontamination activities to identify any cracks where hazardous waste constituents may have migrated below of the surface of the concrete floor. If cracks are identified, they will be assessed. The storage areas, equipment, structure, etc., will be decontaminated by steam cleaning and/or washing with high pressure water and scrub brushes. A temporary berm will be constructed using plastic and railroad ties, or a similar structure, to contain wash water. Wash water will be collected into a 55-gallon drum or similar vessel. A detergent may be used. Approximately 500 gallons of wastewater and residue are expected. Structures and equipment requiring decontamination are:

- Concrete floor in the building;
- Walls that may have been exposed to contamination; and,
- Miscellaneous equipment permanently attached to the facility.

All material used to construct the temporary berm will be collected, characterized, and discarded according to applicable and appropriate waste management rules.

8.8.7 Verification and QA/QC Samples

Decontamination and verification samples will be collected from RH-1. From experience, the contaminants in the decontamination wastewater are expected to be very low. Wastewater will be sent to a local POTW following approval or verification that the discharge limits can be met.

To demonstrate adequate decontamination, one final rinse verification sample will be collected to evaluate cleaning of the walls and floor. In addition, two wipe samples will be collected from the walls inside the building according to the procedure described in Section 8.4.

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In addition to the clean closure verification samples identified in Table 8-~~9~~7, QA/QC samples will be collected during each day of the verification sampling. During each day of verification sampling the following QA/QC samples will be collected:

- A field blank filled with de-ionized water will be exposed during sampling then analyzed to detect accidental or incidental contamination.
- One (1) blind duplicate verification sample will be collected for each ten (10) verification samples collected (rounded up to the next greatest multiple of 10).

Table 8-~~9~~7 identifies the number of verification and QA/QC samples that will be collected during the closure of RH-1. Samples will be properly labeled, sealed, and sent to a Utah Certified Laboratory for testing. Samples will be handled under USEPA chain-of-custody and sample preservation protocols. No residue or contamination is expected to remain on or in the structures and equipment following the decontamination process. Structures and permanent fixtures may be kept for future use. There is no intention to break up and dispose of the building as part of the closure.

8.8.8 Closure Report and Certification

Upon completion of the closure a report will be provided to the ~~Executive Secretary~~Director certifying that the closure was completed in accordance with the plan. The report will include a summary of the operational history of RH-1, copies of manifests that accompany any off-site shipments, certification of destruction or verification of the final disposal of rocket motors shipped from RH-1, copies of the analytical results, copies of the QA/QC data, data validation report(s), characterization of all decontamination wastes and residues, documentation that the closure of RH-1 met the performance standard identified in Section 8.7.3, and a closure certification. A certification of closure according to 40 CFR 264.115 will be submitted by registered mail to the ~~Executive Secretary~~Director within 60 days of the completion of the final closure.

8.8.9 Schedule for Closure

Final closure is expected to be initiated within 30 days of receipt of the final volume of hazardous wastes. If more time is required, ATK-Bacchus will submit a request to the ~~Executive Secretary~~Director. All hazardous wastes will be removed or treated within 90 days of (1) plan approval, or (2) after receiving the final volume of hazardous waste, whichever comes later. Final closure activities will be completed within 180 days of (1) plan approval, or (2) after receiving authorization to transport rocket motors to the site of final disposition, whichever comes latest.

8.8.10 Post-Closure Care

The closure plan described above anticipates that RH-1 will be clean closed and will not require post-closure care. If at the conclusion of the closure activities it is determined that RH-1~~can not~~cannot be clean closed, ATK-Bacchus will develop an appropriate and applicable post-closure care plan for this unit. Any proposal for post-closure care will be developed in accordance with R315-8-7 and 8 UAC and 40 CFR 264, Subpart G and H, and submitted to the ~~Executive Secretary~~Director for approval.

8.8.11 Closure Cost Estimate

The cost estimate for the closure of RH-1 ~~is~~ will be maintained in the operating record. ~~presented in Table 8-10~~.

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8.9. SUMMARY OF STORAGE CAPACITY ~~SUMMARY OF CLOSURE COSTS~~

Table 8-~~11~~ 3, presented in Section 8.5.5 and duplicated here, summarizes the Part A storage capacities of the facilities described in this document ~~and lists the capacities that were used to estimate closure costs~~.

TABLE 8-~~11~~3
SUMMARY OF STORAGE CAPACITIES

Storage Unit	Part A Capacity
HS-1 (8562)	4900 gal
HS-1 (8567)	1200 gal
HS-1 (8568)	9350 gal
HS-1 (Sheds A-D)	450 gal
ES-1	20,000 lb.
Segment Storage	75,000 lb.
RH-1	150,000 lb.

~~Table 8-12 summarizes the closure costs for the facilities described in this document. These costs represent maximum closure costs under any reasonable scenario. Costs are presented in 2008 dollars and are not escalated for future inflation.~~

~~**TABLE 8-12**~~
~~**SUMMARY OF CLOSURE COSTS**~~

~~Description of Unit~~	~~Estimated Cost~~
~~Hazardous Waste Container Storage Facility, HS-1~~	~~$135,837~~
~~Explosive/Hazardous Waste Storage Facility, ES-1~~	~~$58,878~~
~~Segment Storage~~	~~$74,146~~
~~Resthouse-1 Waste Storage Facility, RH-1~~	~~$113,276~~
~~**TOTAL ESTIMATED COST**~~	~~**$382,137**~~

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8.9.1 Changes in Closure Plans

If it becomes necessary to change, amend or modify the closure plans for any of the regulated units, a written request submitted to the ~~Executive Secretary~~Director for a permit modification in accordance with R315-8-7 UAC and 40 CFR 264.112(c).

8.9.2 Closure Cost Updates

Closure costs will be updated annually by July 30th. The cost estimate shall be adjusted for inflation using the Implicit Price Deflator for the Gross Domestic Product typically found on the Utah Division of Solid and Hazardous Waste website. ~~Closure costs will be updated by July 30th annually. within 90 days of the end of Alliant Techsystems' fiscal year. Because the fiscal year begins and ends in March, the annual update will be submitted as a separate document no later than June 30 of each year. The cost estimate will be adjusted using the Implicit Price Deflator for the Gross Domestic Product typically found on the Utah Division of Solid and Hazardous Waste website for solid waste landfill annual reports. published annually on March 30th for the preceding year by the U.S. Department of Commerce Bureau of Economic Analysis.~~

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Other necessary adjustments to the closure costs resulting from changes in storage capacity, early closure of certain units, or other factors, will be made through a new engineering cost estimate for the applicable items and inflation updates for other items and explained in the annual cost update.

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TABLES

SAMPLE VERIFICATION ~~& CLOSURE COSTS~~

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TABLE 8-4
HS-1 SAMPLE VERIFICATION

Area	Analytical Procedure			
	Volatiles	**Semi-Volatiles**	**Metals/Hg**	**Explosives/ Perchlorate**
Bldg. 8562				
Floor (Core)	2	2	2	2
Floor (Final Rinse)	1	1	1	1
Walls (Wipe)	2	2	2	2
Bldg. 8567				
Floor (Core)	2	2	2	2
Floor (Final Rinse)	1	1	1	1
Walls (Wipe)	2	2	2	2
Bldg. 8568				
Floor (Final Rinse)	1	1	1	1
Shed 'A'				
(Final Rinse)	1	1	1	1
Shed 'B'				
(Final Rinse)	1	1	1	1
Field Blank	2	2	2	2
Trip Blank	2	--	--	--
Blind Duplicate	2	2	2	2

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TABLE 8-4

HS-1 CLOSURE COSTS

Item No.	Description	Means No./Source	Units	Est. Quan.	Unit Price	Total Price
1	Materials prep (CIH)	33-22-0111 x 2	hr	20	83.44	1,669
2	Materials prep (technician)	33-22-0112 x 2	hr	20	31.58	632
3	Load drums	33-19-0103	ea	330	4.87	1,607
4	Haul to Clean Harbors	33-19-0210	truck-mi	800	4.66	3,728
5	Landfill disposal	33-19-7214	drum	330	145.00	47,850
6	State disposal fee	Utah	ton	70	28.00	1,960
7	Truck washout/decon	33-19-0311	ea	4	158.00	632
8	Steam cleaning, floors and walls	33-17-0812	sf	8,400	0.84	7,056
9	Concrete core samples, 3" dia.	16-01-0123 x 2	ea	4	50.60	202
10	Wall wipe sample collection	33-22-0112 x 2	hr	8	65.00	520
11	Rinsate sample collection	33-22-0112 x 2	hr	8	65.00	520
12	Sample analyses, volatiles	Chemtech-Ford	ea	23	250.00	5,750
13	Sample analyses, semivolatiles	Chemtech-Ford	ea	22	390.00	8,580
14	Sample analyses, metals	Chemtech-Ford	ea	22	130.00	2,860
15	Sample analyses, explosives	Chemtech-Ford	ea	22	210.00	4,620
-	SUBTOTAL	-	-	-	-	88,186
-	Inflation adjustment (see Means 2008 Heavy Construction Cost Data)			1.141	-	100,620
-						-
-	Misc. costs as a percent of the inflation-adjusted subtotal:					-
-						-
-	Mob/demob			5	%	5,031
-	Engineering/permitting			10	%	10,062
-	DSHW Oversight			10	%	10,062
-	Contingency			10	%	10,062
-	-	-	-	-	-	-
-	**TOTAL ESTIMATED COST**	-	-	-	-	$ 135,837

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TABLE 8-~~13~~5 ES-1 SAMPLE VERIFICATION		
Area	**Analytical Procedure**	
	Explosives/Perchlorate	**RCRA Metals**
Floor (Final Rinse)	2	2
Walls (Wipe)	4	4
Field Blank	1	1
Blind Duplicate	1	1

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TABLE 8-6

ES-1 CLOSURE COSTS

Item No.	Description	Means No./Source	Units	Est. Quan.	Unit Price	Total Price
1	Materials prep (CIH)	33-22-0111 x 2	hr	20	83.44	1,669
2	Materials prep (technician)	33-22-0112 x 2	hr	20	31.58	632
3	Construct temporary berm	17-03-9903	cy	5	54.20	271
4	Load drums	33-19-0103	ea	30	4.87	146
5	Haul to Clean Harbors	33-19-0242	truck-mi	200	5.94	1,188
6	Landfill disposal	33-19-7202 x 7	drum	30	952.00	28,560
7	State disposal fee	Utah	ton	10	28.00	280
8	Truck washout/decon	33-19-0311	ea	1	158.00	158
9	Steam cleaning, floors and walls	33-17-0812	sf	4,000	0.39	1,560
10	Wall wipe sample collection	33-22-0122 x 2	hr	8	65.00	520
11	Rinsate sample collection	33-22-0122 x 2	hr	8	65.00	520
12	Sample analyses, metals	Chemtech-Ford	ea	8	130.00	1,040
13	Sample analyses, explosives	Chemtech-Ford	ea	8	210.00	1,680
-	SUBTOTAL	-	-	-	-	38,224
-	Inflation adjustment (see Means 2008 Heavy Construction Cost Data)			1.141	-	43,613
-						-
-	Misc. costs as a percent of the inflation-adjusted subtotal:					-
-						-
-	Mob/demob			5	%	2,181
-	Engineering/permitting			10	%	4,361
-	DSHW Oversight			10	%	4,361
-	Contingency			10	%	4,361
-	-	-	-	-	-	-
-	**TOTAL ESTIMATED COST**		-	-	-	$ 58,878

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TABLE 8-~~14~~76
SEGMENT STORAGE SAMPLE VERIFICATION

Area	Analytical Procedure	
	RCRA Metals	Explosives/Perchlorate
Segment Storage Pad (Cores)	2	2
Pad (Final Rinse)	1	1
Surrounding Soil	4	4
Field Blank	1	1
Blind Duplicate	1	1

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~~TABLE 8-8~~

~~SEGMENT STORAGE CLOSURE COSTS~~

~~Item No.~~	~~Description~~	~~Means No./Source~~	~~Units~~	~~Est. Quan.~~	~~Unit Price~~	~~Total Price~~
~~1~~	~~Materials prep (CIH)~~	~~33-22-0111 x 2~~	~~hr~~	~~10~~	~~83.44~~	~~834~~
~~2~~	~~Materials prep (technician)~~	~~33-22-0112 x 2~~	~~hr~~	~~10~~	~~31.58~~	~~316~~
~~3~~	~~Load rocket motor (crane)~~	~~Crew SIWSM~~	~~hr~~	~~10~~	~~393.57~~	~~3,936~~
~~4~~	~~Haul motor to Promontory~~	~~Crew COET2~~	~~hr~~	~~20~~	~~93.31~~	~~1,866~~
~~5~~	~~Off-load motor~~	~~Crew SIWSM~~	~~hr~~	~~10~~	~~393.57~~	~~3,936~~
~~6~~	~~Handling evaluation/planning~~	~~EarthFax/ATK~~	~~hr~~	~~160~~	~~65.00~~	~~10,400~~
~~7~~	~~Disposal planning~~	~~EarthFax/ATK~~	~~hr~~	~~120~~	~~65.00~~	~~7,800~~
~~8~~	~~Approval presentations~~	~~EarthFax/ATK~~	~~hr~~	~~40~~	~~65.00~~	~~2,600~~
~~9~~	~~Motor handling~~	~~EarthFax/ATK~~	~~hr~~	~~40~~	~~65.00~~	~~2,600~~
~~10~~	~~Preparing and setting charges~~	~~EarthFax/ATK~~	~~hr~~	~~20~~	~~65.00~~	~~1,300~~
~~11~~	~~Sweep area~~	~~33-22-0112 x 2~~	~~hr~~	~~8~~	~~65.00~~	~~520~~
~~12~~	~~Steam cleaning, pad~~	~~33-17-0812~~	~~sf~~	~~7,500~~	~~0.84~~	~~6,300~~
~~13~~	~~Load rinsate/sweepings~~	~~33-19-0103~~	~~drum~~	~~10~~	~~4.87~~	~~49~~
~~14~~	~~Haul to Clean Harbors~~	~~33-19-0210~~	~~truck-mi~~	~~200~~	~~2.32~~	~~464~~
~~15~~	~~Landfill disposal (from pad decon)~~	~~33-19-7214~~	~~drum~~	~~10~~	~~145.00~~	~~1,450~~
~~16~~	~~State disposal fee~~	~~Utah~~	~~ton~~	~~1~~	~~28.00~~	~~28~~
~~17~~	~~Truck washout/decon~~	~~33-19-0311~~	~~ea~~	~~2~~	~~158.00~~	~~316~~
~~18~~	~~Asphalt core samples, 3" dia.~~	~~16-01-0123 x 2~~	~~ea~~	~~2~~	~~50.60~~	~~101~~
~~19~~	~~Sample collection~~	~~33-22-0112 x 2~~	~~hr~~	~~4~~	~~65.00~~	~~260~~
~~20~~	~~Sample analyses, metals~~	~~Chemtech-Ford~~	~~ea~~	~~9~~	~~130.00~~	~~1,170~~
~~21~~	~~Sample analyses, explosives~~	~~Chemtech-Ford~~	~~ea~~	~~9~~	~~210.00~~	~~1,890~~
-	~~SUBTOTAL~~	-	-	-	-	~~48,136~~
-	~~Inflation adjustment (see Means 2008 Heavy Construction Cost Data)~~			~~1.141~~	-	~~54,923~~
-						-
-	~~Misc. costs as a percent of the inflation-adjusted subtotal:~~					-
-						-
-	~~Mob/demob~~			~~5~~	~~%~~	~~2,746~~
-	~~Engineering/permitting~~			~~10~~	~~%~~	~~5,492~~
-	~~DSHW Oversight~~			~~10~~	~~%~~	~~5,492~~
-	~~Contingency~~			~~10~~	~~%~~	~~5,492~~
-	-	-	-	-	-	-
-	~~**TOTAL ESTIMATED COST**~~	-	-	-	-	~~**$ 74,146**~~

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TABLE 8-~~15~~97 RH-1 SAMPLE VERIFICATION		
Area	**Analytical Procedure**	
	Metals	**Explosives/Perchlorate**
Walls (Wipe)	2	2
Floor (Final Rinse)	1	1
Field Blank	1	1
Blind Duplicate	1	1

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~~TABLE 8-10~~

~~RH-1 CLOSURE COSTS~~

~~Item No.~~	~~Description~~	~~Means No./Source~~	~~Units~~	~~Est. Quan.~~	~~Unit Price~~	~~Total Price~~
~~1~~	~~Materials prep (CIH)~~	~~33-22-0111 x 2~~	~~hr~~	~~10~~	~~83.44~~	~~834~~
~~-~~	~~Materials prep (technician)~~	~~33-22-0112 x 2~~	~~hr~~	~~10~~	~~31.58~~	~~316~~
~~2~~	~~Load rocket motors (crane)~~	~~Crew SIWSM~~	~~hr~~	~~10~~	~~393.57~~	~~3,936~~
~~3~~	~~Haul motors to Promontory~~	~~Crew COET2~~	~~hr~~	~~20~~	~~93.31~~	~~1,866~~
~~4~~	~~Off-load motors~~	~~Crew SIWSM~~	~~hr~~	~~10~~	~~393.57~~	~~3,936~~
~~5~~	~~Handling evaluation/planning~~	~~EarthFax/ATK~~	~~hr~~	~~320~~	~~65.00~~	~~20,800~~
~~6~~	~~Disposal planning~~	~~EarthFax/ATK~~	~~hr~~	~~240~~	~~65.00~~	~~15,600~~
~~7~~	~~Approval presentations~~	~~EarthFax/ATK~~	~~hr~~	~~80~~	~~65.00~~	~~5,200~~
~~8~~	~~Motor handling~~	~~EarthFax/ATK~~	~~hr~~	~~80~~	~~65.00~~	~~5,200~~
~~9~~	~~Preparing and setting charges~~	~~EarthFax/ATK~~	~~hr~~	~~40~~	~~65.00~~	~~2,600~~
~~10~~	~~Construct temporary berm~~	~~17-03-9903~~	~~cy~~	~~10~~	~~54.20~~	~~542~~
~~11~~	~~Sweep area~~	~~33-22-0112 x 2~~	~~hr~~	~~8~~	~~65.00~~	~~520~~
~~12~~	~~Steam cleaning, pad~~	~~33-17-0812~~	~~sf~~	~~7,500~~	~~0.84~~	~~6,300~~
~~13~~	~~Load rinsate/sweepings~~	~~33-19-0103~~	~~drum~~	~~20~~	~~4.87~~	~~97~~
~~14~~	~~Haul to Clean Harbors~~	~~33-19-0210~~	~~truck-mi~~	~~200~~	~~4.66~~	~~932~~
~~15~~	~~Landfill disposal (from pad decon)~~	~~33-19-7214~~	~~drum~~	~~20~~	~~145.00~~	~~2,900~~
~~16~~	~~Sample collection~~	~~33-22-0112 x 2~~	~~hr~~	~~4~~	~~65.00~~	~~260~~
~~17~~	~~Sample analyses, metals~~	~~Chemtech-Ford~~	~~ea~~	~~5~~	~~130.00~~	~~650~~
~~18~~	~~Sample analyses, explosives~~	~~Chemtech-Ford~~	~~ea~~	~~5~~	~~210.00~~	~~1,050~~
~~-~~	~~SUBTOTAL~~	~~-~~	~~-~~	~~-~~	~~-~~	~~73,539~~
~~-~~	~~Inflation adjustment (see Means 2008 Heavy Construction Cost Data)~~			~~1.141~~	~~-~~	~~83,908~~
~~-~~						~~-~~
~~-~~	~~Misc. costs as a percent of the inflation-adjusted subtotal:~~					~~-~~
~~-~~						~~-~~
~~-~~	~~Mob/demob~~			~~5~~	~~%~~	~~4,195~~
~~-~~	~~Engineering/permitting~~			~~10~~	~~%~~	~~8,391~~
~~-~~	~~DSHW Oversight~~			~~10~~	~~%~~	~~8,391~~
~~-~~	~~Contingency~~			~~10~~	~~%~~	~~8,391~~
~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~	~~-~~
~~-~~	~~**TOTAL ESTIMATED COST**~~	~~-~~	~~-~~	~~-~~	~~-~~	~~**$113,276**~~

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ATK LAUNCH SYSTEMS
GROUND WATER SAMPLING AND ANALYSIS PLAN
FOR THE BACCHUS FACILITY

~~April 2009~~
June 2014

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ATK LAUNCH SYSTEMS
GROUND WATER SAMPLING AND ANALYSIS PLAN
FOR THE BACCHUS FACILITY

1.0 PURPOSE AND SCOPE

This plan specifically addresses the sampling of ground water monitoring wells at ATK Launch Systems Bacchus, Utah-based Operations. The location, number, and description of each well have been submitted previously to the Utah DSHW. The plan addresses procedures for taking ground water samples, shipping the samples for analysis, and methods for analyzing samples. Groundwater in many areas throughout the Bacchus facility has historically contained elevated concentrations of various solvents and explosive constituents. The goal of this plan is to collect groundwater samples that are representative of in-situ groundwater conditions and to minimize changes in groundwater chemistry during sample collection and handling.

The purpose of this chapter is to present (1) techniques or procedures which are common to all sampling methods presented in this document; (2) chain of custody documentation requirements; (3) sample handling methods; (4) field quality control procedures; and (5) records management requirements. All of these topics are referred to throughout the document; thus, they are discussed here to avoid excessive repetition in each chapter.

1.1 DECONTAMINATION PROCEDURES

Decontamination of sampling equipment is a necessary and important portion of the sampling protocol. Decontamination of sampling equipment reduces the probability of cross-contaminating samples and sampling stations or monitoring wells. All equipment and instruments utilized in the sampling process must be properly decontaminated prior to collection of the first sample during a given sampling campaign, between subsequent samples, and following collection of the final sample of a given sampling campaign.

Proper decontamination ~~can not~~cannot be overemphasized. It is critical if representative samples are to be collected and if contamination or dilution of samples is to be avoided. Improper decontamination could result in costly re-collection and re-analysis of samples.

1.1.1 Cleaning of Sensitive Equipment The term "sensitive equipment" herein refers to scientific instruments used to measure field water quality parameters at monitoring wells. These instruments include pH and temperature meters and electrical conductivity meters. These instruments should be cleaned carefully due to their delicate construction and inability to withstand high-temperature steam cleaning.

~~Between samples~~If used at a well, sensitive equipment will be cleaned using only distilled water as the rinse. A soft cloth and a soft-bristled plastic scrub brush can be used to remove resistant surface residues. Extreme caution will be used when cleaning scientific instruments to avoid abrasion, bending, or cracking of the instrument probes, cables, and moving parts. Any physical damage to the instruments could result in incorrect readings which may not be detected until after the sampling round has been completed, thus possibly requiring re-sampling of the station.

1.1.2 Cleaning of Non-Sensitive Equipment The term "non-sensitive equipment" herein refers to more rugged equipment used in the sampling process, such as the pumps and bailer. At the start of each day of sampling the non-sensitive equipment will be steam cleaned or thoroughly cleaned with a phosphate-free detergent and rinsed with distilled water. After sampling each well, the equipment will be cleansed using a solution of a phosphate-free detergent in water and then rinsed with distilled water.

Sampling personnel who steam clean the non-sensitive equipment will wear heavy duty water-proof gloves and eye protection to protect contact with steam and metal spray nozzle.

Preferably, the steam cleaner will be centrally located in a garage or service building which has ready access to standard culinary water taps and 110-volt electrical outlets. The building in which the steam cleaner is operated must have adequate ventilation during cleaning operations.

Prior to starting the steam cleaner on any given day, the fuel tank of the steam cleaner will be checked for sufficient fuel. Fuels must be handled in approved containers and stored in accordance with ATK safety procedures. If the system runs short of fuel, the fuel pump must be primed.1.2

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When daily cleaning operations commence, the steam cleaner will be located such that the hose will reach outside of the building to the equipment to be cleaned. The exhaust port of the steam cleaner must be well away from any flammable materials. The discharge hose of the steam cleaner will be positioned away from any materials that may melt.

The pump and bailer will then be steam cleaning and rinsed with distilled water. Both the pump and bailer are steam cleaned and rinsed inside and outside.

1.1.3 Cleaning of Filtration Equipment As will be discussed in subsequent sections, selected samples may be filtered in the field to remove particulate matter. All portions of equipment used in sample filtration which comes into contact with the sample water will be thoroughly cleaned prior to each sampling campaign. The silicone tubing on the peristaltic pump that drives the filtration unit will be cleaned by operating the peristaltic pump on the continuous forward setting while pumping the following sequence of cleaning fluids through the tubing:

- 500 ml of 20% hydrochloric acid solution (HC1)
- 2 quarts distilled water

In addition, after the collection of each filtered sample, the filter will be disconnected and discarded. The filtering system will be cleaned by repeating the above procedures. All cleaning fluids and residues will be collected and managed in accordance with the applicable rules and regulations.

1.2 MEASUREMENT OF FIELD WATER-QUALITY PARAMETERS

The measurement of field water-quality parameters will be performed at each monitoring well prior to sample collection. Field water-quality parameters to be measured include pH, temperature, and electrical conductivity.

These parameters are general indications of field water-quality conditions at the collection point. Since changes in these parameters occur with time, subsequent laboratory analyses are often not as accurate as properly performed field measurements. Therefore, it is critical that great care be taken when performing field measurements, to ensure that data are accurate.

~~Instruments used to measure pH, temperature, and electrical conductivity will be placed within an enclosed or covered area during periods of precipitation.~~

~~**1.2.1 Electrical Conductivity** The collection of electrical conductivity measurements will be performed by means of a portable electrical conductivity meter. Instrument calibration will be checked by measuring the specific conductance of potassium chloride solutions obtained commercially from a chemical supplier. Conductivity meters will be calibrated in accordance with the manufacturer's specifications.~~

~~Water to be used for conductivity measurements will be collected in a clean stainless steel, glass or Teflon™ container. The conductivity probe will be rinsed thoroughly with water from the sample container and then inserted vertically into the container. The water level within the container will be sufficient to immerse the probe to a depth at which sample water covers 2 inches above the bottom of the probe. The conductivity probe will not be immersed above the point at which the control wires enter the top of the instrument probe. The conductivity probe will be gently agitated after immersion into the water sample to release air trapped within the probe chamber. Failure to remove the air within the probe will result in incorrect instrument readings.~~

~~After inserting the probe into the sample water and displacing all air trapped within the probe chambers, the conductivity will be read and recorded directly onto the appropriate sampling form. The instrument probe will be rinsed with distilled water prior to returning the probe and meter to their storage area.~~

~~**1.2.2 pH and Temperature** The collection of pH and temperature data will be accomplished by means of a portable pH meter. The pH meter will be calibrated at the start of each sampling day. Calibration will be performed according to the manufacturer's specifications. The time of each calibration will be recorded on the field log for future reference. Buffer solution data recorded during calibration will include (1) the manufacturer, (2) the production lot number, (3) the pH, and (4) the expiration data.~~

~~Field measurements of pH and temperature will be taken by collecting a sample of water from the monitoring well in a reusable, clean container dedicated for that purpose. Bottles intended for sample storage will not be used for this purpose. A portion of the water from the sample cup will be used to rinse the temperature and pH probes, after which the probes will be placed vertically into the sample cup. The water in the sample cup will be of sufficient depth to immerse the probes to a depth of at least 2 inches. After immersing the instrument probes, the pH and temperature values of the sample will be determined. Measurements for pH will be read to the nearest 0.02 unit and temperature to the nearest 0.1°C. Values of pH and temperature will be recorded onto the appropriate sampling field log. Instrument probes will be rinsed with distilled water immediately after use at each well.~~

~~**1.2.3 Flow Cell** A flow cell may be used during sampling to facilitate accurate field water quality results while either low purge sampling or 3 volume purging a well. A flow cell or flow through cell is designed to enables the user to "see" the physical condition of the purge water and obtain measurements of water quality parameters while the monitoring well is being purged. Field water quality parameters will be monitored continuously as the purge water passes through the flow cell where the instruments for pH, conductivity and temperature are submerged.~~

~~Prior to recording the first reading from the flow cell instrumentation, the sampler will ensure that all stagnant water has been removed from the tubing and hoses using the low flow procedure described in Section 2.3.4. Additional reading of the instrumentation will be taken at a frequency of not less than 1 minute apart. The sampling or reading frequency will be determined by the volume water flowing through the flow cell. To calculate the minimum frequency needed to ensure the flow cell has been completely evacuated between readings, the sampler will divide the volume of the flow cell by the flow~~

~~rate used while purging the well. For example, if the flow cell holds 500 ml of water and the purge rate through the in-line flow cell is 0.1 GPM (379 ml/min), then a reading could be taken approximately every 80 seconds. Once the measurement frequency has been determined, additional measurements will be taken in accordance with the sampling frequency.~~

~~1.3~~ DOCUMENTATION OF CHAIN OF CUSTODY

Water-quality sampling, preservation, shipment, and documentation must comply with the appropriate protocol to ensure that data are representative of in-situ conditions. Therefore, detailed records need to be maintained to provide both quality assurance and quality control in the sampling program. The term "chain of custody" refers to the process of ensuring the integrity of a sample from the time of collection to the time of data reporting. This includes the ability to trace the possession and handling of the sample from the point of collection in the field to the analytical laboratory, and includes the analysis and final disposition of the sample.

A sample is considered to be in a person's custody if it is (1) in a person's physical possession, (2) in view of the person after he has taken possession, (3) secured by that person so that no one can tamper with the sample, or (4) secured by that person in an area which is restricted to authorized personnel. The components of chain of custody include analysis request forms, sample labels, chain of custody forms, field-log forms, and custody seals (commercial shipments only). The procedures for their use are described in the following sections.

1.~~3~~2.1 Analysis Request Forms Prior to the start of each sampling campaign, an Analysis Request Form (ARF) will be prepared for each monitoring well. A typical ARF is shown in Figure 1-1. The ARF includes information on each specific bottle. Each bottle type corresponds to a given set of analyses as defined by the laboratory. The analyses to be performed may change between sampling campaigns as required.

The ARF will specify the quantity and type of bottles to be collected from each sampling site and the chemical preservative required (if any) in each bottle. The ARF will be used to ensure that the proper sample labels are present for each sampling site. Information on the ARF includes (1) the collector's signature, (2) field sample number, and (3) date sampled. The ARF will also dictate (1) the number of each bottle type included in the sample, (2) the preservative and field treatment used for each bottle, and (3) the requested analyses to be performed on the contents in each bottle.

Blind duplicates, ~~equipment blanks,~~ field blanks, and trip blanks will have individual ARFs.

Figure 1-1

~~SECOND QUARTER 2007~~

ATK LAUNCH SYSTEMS
Bacchus Facility, P.O. Box 98, Magna, UTAH 84044

ANALYSIS REQUEST FORM

SAMPLE NUMBER: ~~GW-801~~ _____ DATE: _____ SAMPLER: _____

ANALYTICAL LABORATORY: ATK Launch Systems Environmental Testing Laboratory

Bottle Number	No. of Containers	Preservative/ Treatment	Requested Analysis
1	1	4 degrees C	NITRATE/NITRITE (EPA 300.0)
3	1	4 degrees C	HMX/RDX (SW-846, 8330 Mod) NG/DING (SW-846, 8330 Mod)
9	1	4 degrees C	Perchlorate (EPA 314.0) Conductivity (SW-846, 9050A)
11	3	0.2 ml HCL	Volatile Organics (SW-846, ~~8260~~8260B)

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1.3.2 Sample Labels Sample labels are prepared in advance to prevent misidentification of samples to ensure correct bottles are filled. Gummed paper labels are adequate and will include spaces for recording (1) sample number, (2) bottle number, (3) preservative information, (4) date and time of collection, and (5) name of the collector. This information will be written with an indelible marker.

As the sample is collected the date, time, and collectors name will be recorded on the sample labels. Labels are then attached to sample bottles before leaving sample site.

1.3.3 Chain of Custody Forms To establish the documentation necessary to trace sample possession from the time of collection, a chain of custody form will be filled out and accompany the samples recorded on the form. A typical chain of custody form is illustrated in Figure 1-2.

After the collected samples are recorded in the spaces provided on the chain of custody form, the collector will sign the form and place it with the samples to await transportation to the laboratory. Because the samples are in the custody of the collector, he will not leave the samples unattended at sampling sites or at other locations where the samples may be tampered with. When the samples are relinquished the collector will sign the appropriate relinquishment box on the form.

1.3.4 Custody Seals Custody seals are used to detect unauthorized tampering with the containers used to ship the samples commercially. The seal must be attached to the shipping container such that it is necessary to break the seal to open the shipping container. The custody seal must be affixed to the shipping container before the samples leave the custody of the sampling personnel. Shipping tape should be placed over the custody seal to prevent accidental breakage or removal during handling of the shipping containers. Figure 1-3 is an example of a typical custody seal.

1.3.5 Sampling Log Forms ~~Field data (field parameters, water volumes, water depths, general observations, etc) will be recorded on sampling log forms.~~
Figure 1-4 is an example of a groundwater Hydrasleeve sampling field form to be used each time sampling operations are performed. Information to be recorded on the groundwater sampling log will include, but not be limited to:

- Identification of monitoring well
- Signatures of sampling personnel
- General observations or unusual situations
- Date and time of sampling
- Water-level data
- ~~Well~~Total well depth
- Hydrasleeve depth sampled
- When ~~Purge volume~~
- ~~Water temperature, pH, and specific conductance~~

~~The~~a Field ~~Quality Control Sample Log documents collection of equipment blank (EB), field~~ blank (FB~~),~~) and trip blank (TB) ~~(see Figure 1-5). A complete~~is taken at the current well sampling ~~log form~~, the sampler will ~~be produced for each sampling station or well.~~annotated the sample number and time the field quality sample was taken in the comment section of the Sampling Log Form.

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Figure 1-2
~~Chain of Custody Record~~

~~Page ____ of _____~~

~~ATK LAUNCH SYSTEMS, Bacchus Facility, P.O. BOX 98, MAGNA, UTAH 84404~~

~~Collected by:~~	~~Project:~~
~~Contact:~~	~~Collection Location:~~
~~Telephone:~~	~~Work Order:~~

~~Turn Around Time: _____~~

~~SAMPLE NUMBER~~	~~LAB~~	~~DATE SAMPLED~~	~~TIME SAMPLED~~	~~NUMBER OF BOTTLES~~	~~ANALYSIS REQUESTED~~

~~Relinquished by:~~	~~Received by:~~	~~Date/Time~~

ATK Launch Systems
P.O. BOX 98 MAGNA, UTAH 84404

Environmental Lab Work Request

GENERAL INFORMATION

LAB:		COLLECTED BY:		COMPANY: ATK LAUNCH SYSTEMS	TITLE:
P.O. NO:		COLLECTION LOCATION:			CONTACT:
M-53 PROJ_ID WPKG:		MATERIAL SAMPLED:			EMAIL:

SAMPLE INFORMATION

SAMPLE NUMBER	DATE	TIME	METHOD	BOTTLE	PRESERVATIVE	ANALYSIS REQUESTED	NOTE

NOTE:

CHAIN OF CUSTODY

RELINQUISHED BY	RECEIVED BY	DATE	TIME

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Figure 1-3

Custody Seal

SAMPLED BY _____

SAMPLE NUMBER _____

DATE _____ TIME _____

Figure 1-4

~~**Groundwater Sampling Field Log**~~

GROUNDWATER SAMPLING LOG

ATK Launch Systems Inc.

Bacchus Facility

~~Site~~ _____ ~~Signature~~ _____

~~Date~~ _____ _____

~~Time~~ _____ _____

~~Calibration, pH~~

~~Instrument~~ _____ ~~Probe~~ _____

~~Time of two point calibration conducted today~~ _____ / _____

~~Buffer~~ ~~pH~~ ~~7.00~~ ~~Source~~ _____ ~~Lot~~ _____ ~~Exp Date~~ _____

~~pH~~ ~~10.00~~ _____ _____ _____

~~Calibration, Conductivity~~

~~Instrument~~ _____

~~Buffer conductivity~~ _____ ~~Source~~ _____ ~~Lot~~ _____

~~Exp Date~~ _____

~~Purge Volume~~

~~Well depth (WD)~~ _____ ~~Depth to water (DTW)~~ _____

~~Volume = 0.653* (WD - DTW) =~~ _____

~~Purge volume = 3*Volume =~~ _____

~~Field Parameters~~

~~Time~~	~~pH~~	~~Temperature (°C)~~	~~Conductivity (µmhos/cm)~~	~~Purged Volume (gallons)~~

~~Blind duplicate collected~~ _____

~~Comments~~

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~~**Figure 1-4 (Cont)**~~

~~**Groundwater Sampling Field Log (Page 2)**~~

~~**ATK Launch Systems**~~
~~**Bacchus Facility**~~

~~**Well Head Inspection**~~

~~Well No.~~ _____
~~Date~~ _____ ~~Depth to water (ft)~~ _____
~~Time~~ _____

	~~Yes~~	~~No~~
~~Cracks in the concrete apron~~		
~~Well cover~~		
~~Well No. on well cover or casing~~		
~~Lock to secure cover to casing~~		
~~Well cap (cap to cover PVC)~~		

~~Signature:~~ _____

_____

_____Well # _____ Signatures (s)
Date _____
Time _____

SAMPLED USING HYDRASLEEVE, DEPTH SET @ = _____

Well Depth (WD) = _____ Depth to water = _____

Blind Duplicate Collected _____ Time _____

WELL HEAD INSPECTION

Date: _____

Time: _____

_____
Temp/Weather: _____

	Yes	No
Cracks in the concrete apron		
Well Covered		
Well # on Well Cover or casing		
Lock to secure cover to casing		
Well Cap (Cap to cover PVC)		

Any ~~of the above~~ items needing repair/replacement should be noted below. What was repaired/replaced, when it was repaired/replaced, and who made the repair/replacement should also be noted.

~~Comments:~~

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Figure 1-5

Field Quality Control Sample Log

EB No. _____ Date _____ Last sample location _____

Signature _____

Equipment to be tested _____

_____

Time sampled _____

Distilled Water Quality Check

Gal No.	pH	Temp °C	EC* µmhos/cm	Remarks
1				*Note: EC must be less than 10 umhos/cm
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
Field blank				

Time sampled _____

Trip blank _____

Time labeled _____

Taken to above well Yes _____ No _____

Comments:

1.4 SAMPLE HANDLING PROCEDURES

When samples are collected, those requiring the removal of particulate matter and the addition of chemical preservatives will be treated as described in the following sections. Also discussed are methods pertaining to sample packaging and shipping.

~~**1.4.1 Sample Filtration** Samples requiring filtration will be filtered at the time of collection. Filtered samples are obtained by using an inline filter or external filtering equipment. The filtering equipment will always be assembled at the collection point. A clean filter will not be installed until filtering of samples is required.~~

~~When filtered samples are obtained using external filtering equipment the sample to be filtered will be collected in a clean disposable plastic bottle. These containers will be discarded after each use. Unfiltered groundwater sample will be collected immediately prior to filtering in a clean disposable bottle, using the appropriate methods outlined in Chapter 2. The intake end of the pump tubing will be placed directly into the bottle containing the unfiltered groundwater sample. The discharge end of the pump tubing will be pushed firmly onto the intake port of the filter. The pump control will then be switched to the on position and allowed to run until the tubing and filter have been flushed with filtered water. The sample collection bottle for the filtered sample will then be placed beneath the filter discharge port and filtered sample will be collected.~~

~~After filling, the filtered sample will firmly capped, labeled and stored for analysis. The intake end of the pump tubing will be removed from the collection bottle and the pump will remain running until the pump tubing and filter have been purged of sample water. Intake will then be placed in a container of distilled water and thoroughly rinsed. After rinsing, the pump, tubing and filter mechanism will be decontaminated as described in Section 1.1.3.~~

~~Samples, from wells with dedicated pumps or collected from portable pumps, and requiring filtration will be collected after all other samples have been collected at that well. Samples will be filtered using an inline filter. The filter will be attached to the discharge end of the dedicated pump discharge tubing or portable pump discharge hose. The sample collection bottle for the filtered sample will then be place beneath the filter discharge port. After collecting the filtered sample the filter is removed and discarded.~~

~~1.4.2~~1.4.1 **Sample Preservation** The Analysis Request Form (ARF) (Figure 1-1) indicates the types of preservatives required for each sample bottle. All samples will be cooled to 4°C upon collection regardless of their chemical preservation unless advised otherwise.

Chemical preservatives are listed on the ARF by type and amount of preservative required. Chemical preservatives may include sulfuric acid (H_2SO_4, 50%), nitric acid (HNO_3, 50%), and hydrochloric acid (HC1, 50%). All of the chemical preservatives are corrosive and must be treated with caution. Sampling personnel will avoid skin or eye contact with the preservatives and wear safety glasses and disposable waterproof gloves for protection at all times during handling. Sample preservation will be performed in an area where large quantities of water are available for irrigation; should skin or eye contact occur. The sample preservation will be conducted in a well-ventilated area to prevent buildup of dangerous fumes produced by chemical reactions.

Chemical preservatives will be added to bottles prior to sample collection, if practical, to facilitate mixing of the preservative with the sample and to allow immediate "fixing" of the samples following collection. The sample collection bottles will have a minimum amount of preservative solutions as specified on the ARF. Preservative solutions will be transferred from storage bottles to sample collection bottles by using

dedicated pipettes. One pipette will be used for each type of liquid preservative and under no circumstances will they be used to transfer more than one type of compound. Only one preservative solution will be open at any given time during bottle preservation to prevent accidental mixing of preservative solutions.

1.4.~~3~~2 Sample Shipping Procedures Immediately following the collection of samples, the bottles will be placed in ice chest or refrigerator for storage and subsequent transport to the analytical laboratory. Prior to shipment, bottles and shipping containers will be prepared in a manner which will enable sample bottles to arrive undamaged and suitable for accurate analysis. Sample bottles will be shipped to the analytical laboratory to ensure that holding times may be satisfied.

1.4.~~3~~2.1Sample Packing and Shipping Container Preparation Samples collected during each day's sampling operations will be placed in ice chest shipping containers with crushed ice and or ice packs assembled in a central area prior to shipment.

Glass bottles will be placed in protective foam sleeves and all bottles will be checked for cap tightness. Caps will be tightened as necessary to prevent any sample leakage during transport. Sampling personnel will inventory the sample bottles from each sampling site prior to shipment to ensure that all samples listed on the ARF are present.

If containers are broken during shipment replacement samples will be collected within 3 days. ATK may also contact the Division regarding the need for replacement samples based on data needs.

1.4.~~3~~2.2Shipping Instructions Each shipping container will contain an ARF listing required analyses for each sample bottle within the container. After entering all required information on the form, sampling personnel will send the ARF to the laboratory along with samples.

A Chain of Custody form will accompany each shipment of samples. Sampling personnel will enter all necessary information on to the form. Sampling personnel will sign their name and the time relinquished in the proper location on the form. Following completion of the form, sampling personnel will obtain a copy of the Chain of Custody for subsequent filing.

The appropriate copies of the analysis request and chain of custody forms will be placed inside a waterproof plastic bag and then placed inside the shipping container prior to sealing of the container when shipping commercial. Care will be taken to ensure that the correct forms are included in each cooler.

An adhesive shipping label addressed to the analytical laboratory and containing the return address of the shipper will be securely affixed to the top center of the shipping container when shipping commercially. The container will be securely closed and latched, and an adhesive custody seal completed by the shipper with his signature and the date will be placed across the transition between the container body and lid in such a way that it cannot be opened without breaking the seal. This will notify the analytical laboratory if samples have been tampered with during shipment. After applying address and custody labels, clear plastic sealing tape will be applied liberally to the container to secure the lid to the body to prevent it from opening during shipment. Tape will also be used to secure the address label and custody seal to the shipping container.

1.5 FIELD QUALITY CONTROL

A fundamental part of a water-quality monitoring program is the establishment of quality control programs to ensure the reliability and validity of field data. Quality control procedures will include the

collection of ~~equipment blanks,~~ field blanks, trip blanks, and blind duplicates. These samples are collected as an aid in determining sample biases introduced by ~~equipment decontamination procedures,~~ bottle handling, laboratory procedures, transportation procedures, and random errors.

The number of quality control samples to be collected during a groundwater sampling campaign will be equal to ten percent of the total number of monitoring wells (rounded to the nearest whole number). For example, if there are 73 monitoring wells, 7 quality control samples of each type listed below will be collected. Wells with specific sampling problems or issues may be selected for quality control or The wells selected for quality control ~~will~~wells may be selected randomly. The random selection process will be accomplished by drawing numbers from a container or by using random number generator. The method used during each event and the well(s) selected will be documented in the sample report.

~~**1.5.1 Equipment Blanks** The purpose of equipment blanks is to verify the effectiveness of procedures for cleaning the sampling equipment between individual samples. Equipment blanks, therefore, aid in quantifying sample bias due to collection procedures.~~

~~Prior to collecting equipment blanks, the standard equipment cleaning procedures will be completed (see Section 1.1). A stainless steel cylinder will be steam cleaned and rinsed with distilled water. The cylinder will then be filled with distilled water and the pH, temperatures, and conductivity will be measured. The equipment (bailer) will be inserted in the cylinder and withdrawn. Samples will then be obtained from the cylinder and field parameters; pH, temperature, electrical conductivity measured and recorded. All data collected during the equipment blank process will be recorded on the field log (Figure 1-5). Equipment blanks will be labeled EB-1 for the first blank, EB-2 for the second blank, etc. Samples collected from the monitoring wells will be analyzed for the same parameters selected for the monitoring wells. Records will be kept which identify the well sampled immediately prior to collecting each equipment blank.~~

~~In the event that a random selection of wells includes a well that has a dedicated system, an equipment blank will not be collected from that well but the other quality control samples (field blank and trip blank) will be collected and recorded on the field log form.~~

~~1.5.2~~1.5.1 **Field Blanks** Each time a quality control sample is collected, a field blank will also be collected. The field blank consists of distilled water collected directly from the distilled water containers. The field blank is submitted for analyses to confirm the purity of the commercially obtained distilled water and thus monitor the possibility of false positive results in the equipment blank~~.~~ and to evaluate possible contamination of the water in ambient air by VOCs during sampling. Distilled water for a field blank will be collected from the group of bottles of distilled water used for the equipment blank. The same types and number of sample bottles used for the equipment will be used for the field blank. Field blanks will be labeled FB-~~1~~001 for the first blank, FB-~~2~~002 for the second blank, etc. Field blank pH, electrical conductivity, and temperature will be recorded on the field log along with other information as appropriate.

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1.5.~~3~~2 Trip Blanks For each sampling campaign, a set of sample bottles of each type will be pre-filled with distilled or deionized water. A set of these bottles (referred to as trip blanks) will be transported to the sampling site ~~that is sampled just prior to each equipment blank (i.e., one trip blank per quality control sample).~~ The trip blank bottles will be handled identically to the handling procedures for bottles used for sample collection. The trip blanks will be subjected to the same analyses as the water sampled at the respective sampling sites. Trip blanks serve to indicate (1) if interaction between the sample and the container is occurring, (2) if a handling procedure alters the analytical results, and (3) if the sample bottles are being properly cleaned and rinsed before field use. Trip blanks will be labeled TB-~~1~~001 for the first

blank, TB-~~2~~002 for the second blank, etc. Appropriate information will be recorded on the field log for each trip blank.

1.5.4~~3~~ Blind Duplicates A blind duplicate consists of a duplicate sample collected from a monitoring well. These samples are used to evaluate laboratory precision. This duplicate is provided with an arbitrary sample number and is, therefore, submitted "blind" to the laboratory without their knowledge of which station the sample was obtained from. The dual set of samples from the same sampling location allows detection of possible laboratory bias.

During each sampling campaign, ATK will randomly select ten percent of the monitoring wells for collection of blind duplicates. Specific wells may also be selected based on data needs. Each blind duplicate will be given a false identification number (e.g., GW-124) which will appear to correspond to an actual monitoring well. This method of numbering will be used to prevent laboratory personnel from knowing the source of the duplicate sample.

A suite of sample bottles identical to those used at the monitoring well being duplicated will be used for each blind duplicate. Both the blind duplicate and "real" sample bottles will be filled at the same time and in an identical manner according to standard sampling procedures. Both sets of sample bottles will be handled, packed, preserved, and shipped in the same manner and in the same or similar shipping container(s).

Blind duplicates will be labeled using a "GW" heading and a number which is greater than those used for "real" samples. Table 1 lists numbers historically used (through December 1986) for blind duplicates and corresponding "real" samples. Successively higher three-digit numbers will be used to denote blind duplicate collected at monitoring wells. Sampling personnel will document all blind duplicates collected and the "real" samples that they correspond to. This will allow subsequent correlation of the water chemistry data.

Table 1

Groundwater Blind Duplicate Summary

Blind Duplicate Number	Sample Number	Date (Mo/Yr)
GW-101	GW-11	12/85
GW-102	GW-36	12/85
GW-103	GW-37	12/85
GW-104	GW-28	12/85
GW-105	GW-09	01/86
GW-106	GW-13	02/86
GW-107	GW-04	02/86
GW-108	GW-14	03/86
GW-109	GW-06	03/86
GW-110	GW-24	03/86
GW-111	GW-33	03/86
GW-112	GW-07	06/86
GW-113	GW-12	06/86
GW-114	GW-25	06/86
GW-115	GW-34	06/86
GW-116	GW-14	09/86
GW-117	GW-15	09/86
GW-118	GW-36	09/86
GW-119	GW-05	09/86
GW-120	GW-10	12/86
GW-121	GW-35	12/86
GW-122	GW-38	12/86
GW-123	GW-26	12/86

1.6 ACQUISITION AND ORDERING OF SAMPLING SUPPLIES

Prior to beginning a sampling campaign, sampling personnel will check all equipment to ensure it is in proper working order. Personnel will also inventory all disposable sampling supplies and ensure that quantities required to complete the upcoming sampling campaign are available. Equipment will be maintained and repaired by sampling personnel in accordance with the manufacturer's instructions.

Disposable sampling supplies will be ordered in sufficient quantity to provide an excess of each item required to complete the sampling round. Disposable supplies include sample bottles, shipping containers and packing material, required forms and labels, chemical preservatives, buffer and calibrating solutions for pH and conductivity meters, filters, disposable gloves and other safety equipment, distilled water, and disposable paper towels. Sample bottles and supplies will be obtained in adequate time to ensure that the materials will be available, and stored in a secure location.

1.7 RECORDS MANAGEMENT

The original signed and dated chain of custody forms (Figure 1-2), sample logs~~.~~ (Figure 1-4), or an electronic equivalent logs are considered the legal sampling record for groundwater monitoring wells at the Bacchus Facility. All logs will be kept on file for future program auditing and analysis review~~.~~ for at least three years. All monitoring data, field logs, and maintenance records, will be recorded and archived for future reference.

2.0 SAMPLE COLLECTION

2.1 WATER LEVEL MEASUREMENT

The ~~protocol~~protocols set forth in this chapter were prepared by means of guidelines present in the Utah Administrative Code (UAC) Section 315-3-8-6.8(f) and 40 CFR 264.97(f) as promulgated by the EPA, and the September 1992 edition of the RCRA TEGD. These regulations and guidance documents should be reviewed when updated to ensure that procedures are conducted in a manner that is in keeping with current regulatory requirements.

Static water levels will be collected from all monitoring wells and piezometers on an annual basis at the Bacchus Facility. ~~This information will~~This data will be collected from all wells annually within the sample collection period (approximately 4 months) so it can be used to produce an accurate potentiometric map(s). This information will also be used to determine possible changes in horizontal and vertical flow gradients on an annual basis. This chapter describes procedures used in collecting water-level measurements from the monitoring wells. A determination of the ground-water surface elevation will be conducted each time ground water is sampled as stipulated in 40 CFR 264.97(f).

2.1.1 Equipment Water-level measurements will be obtained by means of an electronic water level indicator. The water level indicator consists of a probe sheathed in plastic, 300 feet or more of plastic-coated transmitting cable, and a light/buzzer. The system operates by means of an open electronic circuit which is closed upon contact with the water surface in the well casing. The light and buzzer at the ground surface indicate~~s~~ when the electrical circuit is closed.

2.1.2 Quality Control Upon arrival at each well site, proceed to complete the wellhead inspection checklist shown on ~~page 12 of~~ Figure 1-~~5~~4. The locking cover of the protective outer well casing will be carefully removed and visually inspected for cleanliness. To avoid contamination during the static water level measurement process, or cross-contamination between wells, the probe and cable of the measuring unit will not be allowed to contact the ground surface or other potential sources of contaminants. The

immersed ~~portioned~~portion will be thoroughly rinsed with distilled water after measurements are completed at each well. The probe and cable will be visibly inspected during each use for foreign materials (e.g., soil, oil, etc). If present, these materials will be removed to reduce the chance of anthropogenic contamination of the wells.

2.1.3 Measurement Procedure~~–~~ The water-level indicator will be checked in accordance with manufacturer's instructions to ensure that it is working properly prior to measuring the wells. Care will be taken to lower the cable of the water level indicator such that the cable does not rub on the edge of the well casing and thus damage footage markers on the cable which are used for measurement.

The sampling personnel will ~~consult the log book in which~~review previous water-level measurements that were recorded to define an approximate depth to the water surface. Knowledge of previous water levels allows the sampling personnel to anticipate the approximate depth at which the probe will encounter the water surface. The cable can then be lowered into the well at an efficient rate and the rate can be reduced near the depth of anticipated contact.

As soon as the probe contacts the water surface, the circuit will be completed and the light and buzzer flash and beep. The sampling personnel will then carefully raise and lower the cable in reference to the top of the protective outer casing to precisely determine the depth to water. The cable will then be read directly to the nearest 0.01 foot and recorded on the appropriate field data sheet.

After the probe is retrieved from the well the probe will be rinsed with distilled water. The protective cap will then be carefully replaced on the inner well casing. Care will be taken to ensure that the locking cap of the protective outer well casing is secured to preclude unauthorized access to the inner well casing.

2.2 ~~SAMPLING ORDER OF MONITORING WELLS~~

~~The specific hose and pump used to purge a well is a function of whether the well has a dedicated pumping system or is purged with a portable pump and reel. In general, contaminated wells will be sampled after non-contaminated wells. Groundwater monitoring wells will be sampled during the course of any given day starting with the least contaminated well first and ending with the most contaminated wells to avoid cross contamination. Although specific purge and sample systems are described below, other methods may be employed if they meet guidelines approved by the USEPA and Utah DSHW.~~

~~2.3~~ WELL ~~PURGING AND~~ SAMPLE COLLECTION

2.~~3~~2.1 Pre-sampling Operations Prior to the use of equipment at a well, ~~the~~any equipment that is reused and comes in contact with the well will be cleaned as specified in Section 1.1. All bottles will be prepared for sampling, and the paperwork will be prepared so that paperwork effort in the field can be minimized.

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~~**2.3.2 Purge Operation** The purging operation will consist of a dedicated stainless steel submersible pump or a portable stainless steel submersible pump connected to a Teflon™ coated hose on a reel. Various combinations of pump sizes and hose sizes will be required to purge wells depending on the depth and size of the well. A stainless steel, Teflon™, or disposable polyethylene bailer may also be used for purging the well.~~

~~**2.3.3 3 Volume Purging Procedures** Prior to the commencement of purging operations instruments used to monitor the chemistry of the discharged water will be calibrated according to manufacturers specifications.~~

The cap and cover of the well will be removed. The pump will be lowered into the well until it is submersed in or near the screened interval. The discharge hose will be connected and placed in a container. The pump will be started and the well will be pumped until the three well volumes have been removed. This volume may be measured by filling buckets, drums or a tank to a calibrated mark or by measuring the flow rate for the purging the well and calculating the purge volume for a period of time.

Wells may be purged by a dedicated pump system or portable pump with a hose reel system. For dedicated systems a hose is attached to fitting on top of well where water is discharged. The discharge hose can be placed into a measuring bucket, 55 gallon drum or tank. The pump then will be plugged into the generator and the well will be pumped until the required purge volume has been removed. This volume will be measured by filling buckets, drums or a tanks to a calibrated mark or by measuring the flow rate for the purging the well and calculating the purge volume for a period of time.

Wells may also be purged using a stainless steel, Teflon™, or disposable polyethylene bailer. The bailer will be connected to the cable and positioned directly above the well. The bailer will be lowered until it is completely immersed, if possible, and permitted to fill with water. The bailer will be raised and emptied. This procedure will be repeated until the appropriate purge volume has been removed.

Purge water will be managed in accordance with the procedures described in Section 2.3.11.

Samples of the discharging water will be collected in a cup dedicated for measurement of pH, specific conductance, and temperature. All field measurements will be performed on samples collected in the sample cup (i.e., probes will not be inserted into sample bottles which will be shipped to the laboratory). All field data and the time at which they were collected will be recorded on the sampling log form (Figure 1-4).

Wells will be purged until pH values stabilize. This parameter will be considered stable when readings from three successive samples lie within plus or minus 0.1 pH units.

2.3.4 Low Flow Purging The objective of low-flow purging is to pump in a manner that minimizes stress (drawdown) or disturbance to the ground-water flow system to the extent practical. Low flow purging will follow the procedures outlined below.

In situations where a well is screened or open across a single zone of interest, and that zone is comprised of nearly homogeneous geologic materials, the pump intake should be positioned at or near the mid-point of the well screen. In this type of situation, the water that is withdrawn will likely represent the water quality of the entire screened zone, even at low-flow pumping rates. In situations in which the geology of the screened zone consists of heterogeneous materials with layers of contrasting hydraulic conductivity, the pump intake should be positioned adjacent to the zone of highest hydraulic conductivity (as defined by geologic samples).

In general, the pumping rate used during low-flow purging and sampling must be low enough to minimize mobilization and entrainment of particulate matter and to minimize hydraulic stress on the well and the formation (for example, to minimize drawdown and to eliminate inclusion of stagnant water from the casing in the sample).

Prior to the beginning of the purging process, the sampler will calculate the minimum amount of water that must be removed from the tubing to ensure that no stagnant water is present. This volume will be determined by taking the total well depth minus the water level and then multiplying that number by the

~~volume of water contained in one foot of hose or tubing used to purge the well. The formula for this calculation if as follows:~~

~~[Total Well Depth – Water Level (ft)] X [Volume of water in one foot of hose (gal/ft)] = Amt of water to be removed~~

~~This calculation determines the potential volume of stagnant water present in the tubing or hose used to extract the groundwater and ensures that all of the field measurements taken during purging and sampling operations are taken from formation waters.~~

~~After the pump intake is properly set in the well, the pump will be started at a low pumping rate, 1 gpm or less. From the time the pump is started, the water level in the well will be measured to determine the amount of drawdown caused by pumping. If drawdown is rapid and continuous, the pumping rate will be lowered until drawdown decreases and stabilizes. The pumping rate may be slowly adjusted to the point at which drawdown stabilizes. The maximum pumping rate will not exceed a pumping rate of 1 gpm during purging.~~

~~During purging, the water level in the well should not decrease significantly and should stabilize after purging for a few minutes. Water quality parameters will be collected and measured during purging until pH, conductivity (or specific conductance), and temperature have stabilized. Stable conditions will be when the pH, conductance and temperature have stabilized, and the readings vary no more than 10% over at least three measurements. The 10% variation will be calculated using the following formula:~~

~~[(Max – Min of last 3 reading)/last reading] X 100%~~

~~Once readings have stabilized and are recorded, groundwater samples will be collected from the discharge hose at a rate equal to or less than 1 gpm.~~

~~**2.3.5 Low Yield Monitoring Wells** Low yield monitoring wells will occasionally purge dry before 3 volumes are purged from the well. In the event that the well purges dry, the water level in the well will be allowed to recover to within 80% of the pre-pumping level or within 24 hours of purging. Once recovered, the well will be sampled without additional purging.~~

~~**2.3.6 Sample Withdrawal** After the well has stabilized, the groundwater will be withdrawn for samples using either a stainless steel, Teflon™, or disposable bailer or taken directly from the pump discharge hose. Dedicated wells may be sampled using a bladder pump and controller or a Grundfos RediFlo pump and controller. The controller will be adjusted to maintain a steady flow rate while sampling. The bailer will be used as described above to collect water.~~ **2.2.2 Sample Collection** A new HydraSleeve® sampler (US patents #6,481,300 and #6,837,120), manufactured by GeoInsight (www.hydrasleeve.com) will be used to collect a representative groundwater sample in each well without the need for purging. Water is collected from a defined interval within the well screen without mixing fluid from other intervals. The empty sampler will be weighted at the bottom, attached to a line, and then lowered to the depth within the well screen. Prior to activation, the sampler remains in a collapsed (i.e., empty) state and therefore takes up minimal space within the well. Therefore, sampler deployment results in only very slight water displacement but it is typically left in the well for a period of time to assure the well is re-equilibrated. To activate, the sampler will be pulled up a distance equal to 1 to 2 times the sampler length (2.5 to 5 feet for a 30-inch-long sampler). As the sampler rises through the water column, the reed valve opens, allowing the sampler to "core" the water column through which it is being raised. Once full, the reed valve closes, which prohibits any more water from entering the sampler.

2.2.3 Sample Withdrawal The HydraSleeve will be withdrawn from the well for sample collection. Water-proof disposable gloves will be worn during sampling. These gloves will be disposed of after sampling activities are completed at each well. All bottles will be appropriate to the sample and EPA analytical method. ~~At dedicated wells, sample bottles will be filled from the end of the Teflon™ or polyethylene discharge tubing.~~

Bottles will be filled in the following order:

1. Volatile organics (VOA);
2. Explosives (e.g. NG, HMX);
3. Perchlorate;
4. Nitrate/Nitrite;

Bottles used for the collection of volatile organic compounds, will be collected first and filled gently from the bottom up and immediately capped so that no free air remains in the headspace of the bottle. To check for free air in the headspace, the bottle will be turned up-side-down after it is capped. If bubbles appear at the bottom of the bottle, the bottle must be uncapped and additional liquid must be added to eliminate all free air from the bottle.

After collection of each sample, the time of collection will be recorded in the field log, on the sample label, and on the chain of custody form (Figure 1-2). The collector will then initial or sign all the forms, labels, and field logs as appropriate to certify that sampling of that particular well is complete. Each sample bottle will be affixed with a sample label after sample collection (see Section 1.3.2 of Chapter 1 for discussion).

2.~~3.7~~2.4New Monitoring Wells~~-~~ ATK periodically installs new monitoring wells to refine the understanding of contaminant migration on and offsite of the Bacchus Facility. In the event that a new monitoring well is installed, ATK proposes to collect four sets of quarterly groundwater samples for the constituents listed in ~~Table 2~~Figure 1-1. This list of analytes ~~has been~~will be used for the ~~previous~~ baseline chemistry at the Bacchus Facility. Once the four quarterly sampling events have been accomplished and analytical data evaluated, the new monitoring well will revert to annual sampling unless otherwise agreed upon with the Division.

2.~~3.8~~2.5Sample Handling Refer to Section 1.4 of Chapter 1 for discussion of sample preservation and sample shipping procedures.

2.~~3.9~~2.6Field Quality Control Refer to Section 1.5 of Chapter 1 for discussion of sample blanks and duplicates.

2.~~3.10~~2.7 Records Refer to Sections 1.7.

~~**2.3.11 Purge Water Management** Purge water containing contaminants of concern will be collected at the well head in either drums or a mobile tank, and managed as hazardous waste in accordance with R315-5 of the UAC. All applicable requirements of R315-5 of the UAC including label, container management and accumulation time requirements will be implemented at the well head. Contaminated purge water that meets the Wastewater Treatment Unit Exemption, must be stored in a tank or tank system that is directly connected to the wastewater treatment unit, or it must be collected in a mobile tank and discharged to the wastewater treatment unit within 72 hours or three working days of being collected.~~

~~2.4~~2.3 SAMPLE COLLECTION SCHEDULE

ATK will notify the Division at least 10 days prior to the beginning of the annual groundwater sampling campaign. The ground water monitoring wells will be sampled in accordance with the sampling protocol identified in Table ~~3.~~ 2. Wells will be sampled during an annual ground water campaign between the months of May and August of each year. If conditions in a particular area change or concentrations at a specific well are in question, the sampling frequency and parameters may be modified to allow for sample collection. Any request for additional sampling or change to the sampling frequency or parameters for a particular well will be made in consultation with the Division.

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3.0 ANALYSIS OF GROUNDWATER SAMPLES

All samples will be analyzed by a Utah certified laboratory, using ~~EPA or State approved~~ the analytical methods~~.~~ described in the ATK approved QAPP. If there is not an established EPA or State approved analytical method in the QAPP for a certain parameter, the Utah DSHW will be notified of the proposed analytical method.

If the laboratory does not have Utah certification for a specific analysis, the laboratory will subcontract a qualified Utah certified laboratory to do the analysis. Table ~~3~~2 lists the wells to be sampled and sampling frequency for each well at the Bacchus Facility. All samples will be analyzed for the field water quality parameters pH, temperature, and conductance.

Table 2

Groundwater Analytes and Sampling Frequency

~~**NEW MONITORING WELL ANALYTE LIST**~~

~~Bottle Number~~	~~No. of Containers~~	~~Preservative/ Treatment~~	~~Analysis~~
~~1~~	~~2~~	~~4 degrees C~~	~~General Parameters Alkalinity, Aluminum, Calcium, Chloride Fluoride, Iron, Magnesium Potassium, Sodium, Sulfate, TDS TSS, Zinc~~
~~1~~	~~1~~	~~4 degrees C~~	~~NITRATE/NITRITE (EPA 300)~~
~~3~~	~~1~~	~~4 degrees C~~	~~HMX/RDX (SW-846, 8330 Mod) NG/DING (SW-846, 8330 Mod)~~
~~4d~~	~~1~~	~~5 ml HNO3~~	~~METALS (EPA 6010)~~
~~9~~	~~1~~	~~4 degrees C~~	~~Perchlorate (EPA 314)~~
~~11~~	~~3~~	~~0.2 ml HCL~~	~~Volatile Organics (SW-846, 8260)~~

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~~Table 3~~

~~Groundwater Analytes and Sampling Frequency~~

Well	Volatiles	~~Field Parameters~~	Nitrate/ Nitrite	Perchlorate	HMX/RDX	NG
GW-1	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		
GW-2			~~Semi-Annual~~	~~Semi-~~Annual		
GW-3			~~Annual~~	Annual		
GW-4	Annual		~~Annual~~	Annual		
GW-5	Annual		~~Annual~~	Annual		
GW-6	Annual		~~Annual~~	Annual		
GW-7			~~Annual~~	Annual		
GW-8			~~Annual~~	Annual		
GW-9			~~Annual~~	Annual		
GW-10	Annual		Annual	Annual	Annual	~~Annual~~
GW-11			~~Annual~~	Annual		
GW-12	Annual		~~Annual~~	Annual	Annual	
GW-13	~~Semi-~~Annual		~~Semi-~~Annual	~~Semi-~~Annual	~~Semi-Annual~~	
GW-14	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		
GW-15	Annual		~~Annual~~	Annual		
GW-16			~~Annual~~	Annual		
GW-17			~~Annual~~	Annual	Annual	
GW-18			~~Annual~~	Annual	Annual	
GW-19	Annual		~~Annual~~	Annual	Annual	
GW-20	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-21			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-22						
GW-23						
GW-24			~~Annual~~	Annual	Annual	
GW-25			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	~~Semi-~~Annual
GW-~~26~~25A				Annual	Annual	Annual
GW-26	Annual			Annual		
GW-27						
GW-28	Annual		~~Annual~~	Annual		
GW-29	Annual		~~Annual~~	Annual		
GW-30	Annual		~~Annual~~	Annual	Annual	
GW-31			~~Annual~~	Annual	Annual	
GW-32			~~Annual~~	Annual		
GW-33	Annual		~~Annual~~	Annual		
GW-34	Annual		~~Annual~~	Annual		

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GW-35	Annual	~~Annual~~		Annual		
~~GW-36~~				Annual		
~~GW-37~~				Annual		
GW-~~36~~38				Annual	Annual	
GW-~~37~~39				~~Semi-~~ Annual	~~Semi~~ Annual~~-~~	
~~GW-38~~		~~Semi-Annual~~		~~Semi-Annual~~	~~Semi-Annual~~	
~~GW-39~~		~~Semi-Annual~~		~~Semi-Annual~~	~~Semi-Annual~~	

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Table ~~3~~2 (Continued)

Well	Volatiles	~~Field Parameters~~	Nitrate/ Nitrite	Perchlorate	HMX/RDX	NG
GW-40			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-41			~~Annual~~	Annual		
GW-42			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-43	Annual		~~Annual~~	Annual		
GW-44			~~Annual~~	Annual	Annual	
GW-45			~~Semi-Annual~~	~~Semi-~~Annual		
GW-46			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-47			~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-48			~~Annual~~	Annual		
GW-49	Annual		~~Annual~~	Annual		
GW-50	Annual		~~Annual~~	Annual		
GW-51	Annual		~~Annual~~	Annual		
GW-52						
GW-53			Annual	Annual	~~Annual~~	
GW-54	Annual		~~Annual~~	Annual		
GW-~~55~~54A	Annual		-	Annual	-	-
GW-56	Annual		~~Annual~~	Annual		
GW-57	Annual		~~Annual~~	Annual		
GW-58	Annual		~~Annual~~			
GW-59			~~Annual~~	Annual		
GW-60	Annual		~~Annual~~	Annual		
GW-61	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		
GW-62	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-63	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-64	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-65	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	~~Semi-~~Annual	
GW-66	Annual		Annual	Annual	Annual	~~Annual~~
GW-67	Annual		~~Annual~~	Annual	Annual	
GW-68	Annual		~~Annual~~	Annual	Annual	
GW-69	Annual		~~Annual~~	Annual	Annual	
GW-70	Annual		~~Annual~~	Annual	Annual	
GW-71			~~Annual~~	Annual		
GW-72	Annual		~~Annual~~	Annual		
GW-73			Annual	Annual	~~Annual~~	
GW-74			~~Semi-Annual~~	Annual	~~Semi-Annual~~	
GW-75			~~Semi-~~Annual	Annual	~~Semi-Annual~~	
GW-76	~~Semi-~~Annual		~~Semi-Annual~~	Annual	~~Semi-Annual~~	

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GW-77		~~Annual~~	Annual~~-~~	Annual	~~Annual~~	~~-~~
GW-78		~~Semi-Annual~~	Annual~~-~~	~~Semi-Annual~~		~~-~~

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Table ~~3~~2 (Continued)

Well	Volatiles	~~Field Parameters~~	Nitrate/ Nitrite	Perchlorate	HMX/RDX	NG
GW-791	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	-	-
GW-792	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual	-	-
GW-801	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		-
GW-802	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		
GW-803	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		-
GW-811	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		-
GW-812	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		-
GW-082	~~Semi-~~Annual		~~Semi-Annual~~	~~Semi-~~Annual		-
GW-083	~~Semi-~~Annual			~~Semi-~~Annual		-
GW-085	Annual			Annual		
GW-086	Annual			Annual		
GW-087	Annual			Annual		

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